

**Department of Physics and Astronomy  
Wayne State University**

# **Planetarium and Outreach**

## ***Annual Report 2010***

Monday, March 7, 2011



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## **2 Introduction**

This report presents an account of the activities of the planetarium and outreach group during the period Jan-Dec 2010.

Highlights include the creation of signage and murals at the planetarium, a five-fold increase in the number of shows, training of instructors, creation of a new lecture series titled Science under the Dome, development of a professional planetarium website and multiple brochures.

## **3 Mission and Long Term Goals**

The Department of Physics and Astronomy prides itself in offering excellent undergraduate academic programs: BS in Physics, BS in Biomedical Physics, and BA in Astronomy. Additionally, the Department has emerged in the last two decades as a leading institution, nationally and internationally, for its research programs in Condensed Matter Physics, Nuclear Physics, and Particle Physics. The Department now also features a nascent and promising astrophysics group. It is worth noting also that in the last decade six members of the Department Faculty have been recipients of the prestigious NSF career award, one of who received the PECASE award, one received an OJI award from the DOE, and one received a career award from the NIH. Also worth noting are the sustained strong level of external funding now awarded to members of the Department, their strong and leading edge scholarship, and their participation in the organization and advisory of multiple national and international conferences.

In short, it is fair to say that the Wayne State University Department of Physics and Astronomy is a strong Institution rivaling advantageously with many of the leading Physics departments in the nation. The size and quality of the student body, both at the undergraduate and graduate level, are however still relatively modest. Clearly, concerted and more aggressive recruitment and outreach efforts are required to attract more and perhaps better students. One should in particular target, for our undergraduate programs, a wider diversity of students seeking to attract suburban young talented students who perhaps do not have the financial means to attend Ivy League institutions, as well as the smartest and most promising inner city young men and women. One should also aim to attract students at the state and national level. For our graduate programs, one should seek to attract more and better students from abroad but also make greater efforts to attract talented American kids of all ethnic backgrounds.

At the most basic level, the purpose of the Planetarium and Outreach group is thus to provide a high profile and effective outreach instrument to the Department of Physics and Astronomy as well as the College of Liberal Arts and Sciences. Indeed, our primary mission is to improve the visibility, exposure, and reputation of the Department in the local, state, national, and international scientific communities, and to promote its academic and research programs in order to achieve recruitment of stronger and more numerous undergraduate and graduate students. The Planetarium alone is however likely insufficient to achieve the above objectives. One must also continue, and in fact raise, the past and ongoing traditional recruitment and outreach efforts. One must better identify our student population targets, and correspondingly

deploy what we believe will constitute the best means to reach and attract those diverse student groups.

Based on conversations with members of the local community, members of the Physics Department Faculty observe that Detroit suburban families typically have a negative perception of the Wayne State campus area given its location in the heart of Detroit. Many also ignore or have a negative perception of the Wayne State programs and consider them significantly inferior to those of University of Michigan or Michigan State University. Our marketing and outreach efforts must thus target a change of “culture” or perception. One must raise the visibility of the Department, and impart on potential students that the Wayne State University Department of Physics and Astronomy features strong and high quality academic and research programs. Promotion of high quality programs cannot be achieved with poor quality or trivial marketing and outreach tools and media. Indeed one must aim to use high quality instruments (ads, brochures, posters, etc.) to convey a positive and appealing image. This of course must be accomplished within the modest marketing and outreach budget afforded by our Department. As it turns out, the upgraded planetarium, with its brand new Spitz SciDome High Definition Projection System is one such high quality outreach tool and as such constitutes one of the central pieces of our outreach and marketing efforts.

Although we yet have to carry a “market analysis”, we consider using the following tools for the advertisement, and promotion of our programs.

- Update, improve, and better maintain the Department website to feature
  - Department Mission
  - Department Academic and Research programs
  - Department and Science News
  - Department Magazines - e.g. Light and Dark Matters, Alumni publication, etc.
  - Department Event Calendars featuring Colloquia, Seminars, and special events
  - Department Faculty and Students
  - Department Resources and Tools targeted towards our Faculty, Students, and the Public
  - Frequently asked questions
  - External links of interest
- Publication of targeted ads, featuring our programs, in schools and colleges of the Detroit urban area. Also consider other media.
- Publication and Distribution of various printed pieces such as 1/2 Cardstock, bifold or trifold brochures, flyers, posters, mail pieces, and emails to feature our academic and research programs.
- Department Representation at University Open House and Recruitment events
- Department Representation at local and state meeting or conferences of various organizations and associations.
- Use twitter, Facebook, YouTube, and similar Internet media to inform the public about our Department.
- Work in concert with the University OVPR and Marketing departments for

- Press releases featuring discoveries and accomplishments by members of our Department.
- Publication of articles featuring the work and research of members of our Department in various University publications (Science Magazine, Alumni Magazine, etc.) as well as other magazines accessible to a wider public/population.
- Advertise our Faculty and programs via media such as Facebook, you-tube, papers, and if possible radio and television. The recent University “One minute Professor” campaign is a salient example of advertisement well chosen for our young student population
- Regular/Periodic Department Open Houses
- Organization of local Undergraduate and Graduate mini conferences or symposia.
- Participation of our students and faculty to local conferences of the APS.
- Planetarium
  - Feature entertaining shows to attract a wide public to campus
  - Feature instructional shows to Wayne State U students and possibly students of other colleges to attract them towards our Department programs.
  - Feature instructional shows to K-12 students of the Detroit urban area that are well matched to the State of Michigan K-12 Grade Level Content Expectations (GLICs). Develop and provide pre- and post- show activities to complement the shows.
  - Feature Special Events for Alumni, or University Fund raisers.
  - Rent the Planetarium as a venue for outside groups and High Profile Organizations for Special Events.
  - Planetarium website to advertise the Planetarium shows, activities, and resources provided to the Wayne State University and Detroit Urban community.
  - Creation of Instructional Shows using available resources - in particular those bundled by Spitz with the SciDome Projection system.
  - Creation of Full Dome shows.
- Creation of a Physics Summer Camp program.
- Creation (long term goal) of a Learning Center in collaboration with other units of our college and university including or featuring
  - Planetarium
  - Physics Activities, Physics Summer Camp
  - Biology, Geology, and Anthropology Departments (collections and exhibits)
  - Computer Science Activities such as the CS Summer Camp
  - SEMAA Program
  - Math Corps Program
- And more...

Clearly, the above list is rather ambitious. However, many of the above items are already in place, or being developed. Others e.g. Summer Camp, Learning Center, are still in the planning phase and can only be realized if sufficient funds and human resources become available to support them. The Department, thanks to the efforts of Chairperson Prof. Ratna Naik, has already

established a Planetarium and Outreach team to carry much of the activities outlined above. It is the duty of the Director of the Planetarium and Outreach to formalize, organize, coordinate, and oversee these different activities. The funds and human resources available to carry the above activities while limited should nonetheless permit a considerable improvement towards accomplishing our outreach mission.

Given further developments and sustainability of the Planetarium and general Outreach activities, these require substantial funds and we must consider fund raising through donations, generation of revenues through our shows and rental of the Planetarium as a venue for special events. We therefore plan to increase the number of public shows and institute a modest entrance fee. Rental for special events should be priced at a level sufficient to cover the expenses associated with the event and susceptible of generating revenues for the Planetarium. We must also charge a modest fee for K-12 presentations to cover associated costs, instructional material, and generate some revenues. Some of the activities outlined above will require considerably more resources; we shall thus endeavor to raise funds from grant applications within the University but more appropriately from government agencies and other public or private organizations.

#### **4 Planetarium and Outreach Personnel Organization**

Given the large number of planetarium and outreach activities to be conducted, it is essential the Planetarium group be well organized and responsibilities clearly delineated amongst the members of the team to avoid duplication of efforts and confusion. This said, some tasks such as planetarium instruction are conducted so frequently that two or more members of the team must share them.

The team is comprised of the Director, Associate Director, two Coordinators, a number of instructors, and miscellaneous contributors. The job descriptions of the members of the team are as follows.

The Director of Planetarium and Outreach defines the Mission of the Planetarium and Outreach effort. He draws, in concert with the Department Chairperson, a long-term strategy to accomplish this mission, and set short-term goals. He supervises the Planetarium and Outreach personnel, and he or his delegate recruits additional personnel as needed. He identifies and procures resources needed to accomplish the goals. He is additionally responsible for the generation of grant proposals, and general development of the Planetarium and Outreach.

We are currently considering the formation of an Advisory Board whose purpose will be to periodically review and advise the Planetarium Director.

The Associate Director assists the Director in the elaboration of short term goals, Planetarium Development, and Grant writing. Shares responsibilities for public relations and representation with other University units and external organizations. Acts as a liaison with the Spitz Corporation for matters involving the Planetarium Projection System, relevant associated equipment and software, their maintenance or upgrades. Supervises Planetarium instructor recruitment and training. Contributes as a show instructor and developer. Shares responsibility for instructional material development. Shares responsibilities with the two Coordinators for Department and Planetarium representation at outreach events, teacher conferences, recruitment events, and other related events.

The Marketing and Outreach Coordinator leads and coordinates marketing and outreach efforts carried by the Department to increase its visibility, exposure, and reputation. Has responsibility for the edition, writing, and management of the Department and Planetarium websites, and their various publications. Contributes as a show instructor and developer. Shares responsibility for instructional material development.

The Outreach and Planetarium Coordinator leads and coordinates efforts carried out by the Department towards the recruitment of new majors, and to promote both Department awareness, visibility, and stature within the WSU campus, K-12 DPS and Metro Detroit area schools, as well as the general public. Acts as K-12 Educational Programs and Activities Coordinator and is the main contact with teachers. Has responsibility for the organization, coordination, record maintenance of planetarium shows and events as well as Department events. Contributes as a show instructor and developer. Shares responsibility for instructional material development.

Planetarium instructors report to the Associate Director. They present Planetarium shows and/or Physics Demonstrations following and adhering to guidelines established by the Associate Director. Employees, students, and friends of the Department are eligible to become planetarium instructors. They must however complete Instructor training under the supervision of the Associate Director (or delegate), and demonstrate sufficient scientific proficiency, and professional conduct before they are authorized to have unsupervised access to the planetarium (i.e. have a key and access code) and deliver shows.

The planetarium and outreach group currently consists of

- Prof. Claude Pruneau, Director of Planetarium and Outreach
- Pat Domanski, Marketing and Outreach Coordinator, Instructor
- Dawn Niedermiller, Outreach and Planetarium Coordinator, Instructor
- Jeff Conn, Associate Director, Public Relations, Instructor
- Paul Drallos, Programming, Instructor
- Matt Taylor, Instructor
- Emeritus Prof. Walter Kauppila, Outreach
- Emeritus Prof. Gerry Dunifer, Outreach
- Alan Sebastian, Technical Support

We are actively pursuing the recruitment of additional instructors to present planetarium shows. Five students of the Department of Physics and Astronomy have expressed interest in becoming Planetarium instructors, and are receiving training.

The Planetarium and Outreach group is engaged in many activities targeted towards the promotion of the Department, student recruitment, and the planetarium. These different activities and the personnel involved can be summarized as follows.

#### Planetarium Operation/Maintenance

*Jeff Conn, Alan Sebastian, Dawn Niedermiller*

- Planetarium Equipment, software procurement and maintenance
- Show procurement
- Instructor training and oversight;



- Planetarium safety; Parking;
- Outreach equipment procurement and maintenance.

#### Planetarium Development, Fund raising, and Public Relations

*Claude Pruneau, Jeff Conn, and concert with the College and University Development offices (Michael Mirto, ...)*

- Event organization and planning (Fund raisers, other special events)
- Contact with schools and local organizations
- Grant proposal development and writing

#### Outreach Activities

*Dawn Niedermiller, Jeff Conn*

- Representation at teacher conference, recruitment events inside/outside Wayne
- Organization of K-12 school/student visits at Wayne and/or the Planetarium
- Stock/Inventory of all outreach material for site visits

#### Marketing

*Pat Domanski*

- Development and maintenance of brochures, handout material, mailing list, email lists
- Website development and Maintenance
- Alumni Newsletter and other publication material
- Press release preparation

#### Curriculum Development

*Pat Domanski, Dawn Niedermiller, Jeff Conn, Paul Drallos, C. Pruneau*

- Development of K-12 Shows
- Development of AST2010 and BA in Astronomy shows
- Development of Learning Activities

#### Programming

*Paul Drallos, Matt Taylor*

#### Show Instructors

*Pat Domanski, Dawn Niedermiller, Jeff Conn, Matt Taylor, and C. Pruneau*

## 5 Planetarium Shows and Special Lectures

The planetarium offers diverse types of shows and lectures. Our audiences include Wayne State students enrolled in astronomy and/or physics courses, K-12 students from schools of the urban Detroit area, private interest groups (e.g. scouts, senior citizen groups), and the public at large.

## 5.1 Public Shows

The planetarium team strived to present regular public shows. In 2010, public shows were presented almost exclusively on Friday evenings at 7PM. We presented a total of 32 public shows with a typical attendance of 40 people per show.

As we improved and enlarged our email lists, we observed a steady increase in the number of people attending our Friday evening public shows. We have thus decided to institute Saturday afternoon public shows as well. As of Jan 22th, public shows are now presented weekly both on Friday 7PM and Saturday 2PM.

Public shows consist of three parts: interactive demonstrations (solar system scale, light spectra, etc.), the current night sky, and a fulldome film-

## 5.2 AST2010 Shows

Two distinct planetarium shows are presented to all students enrolled in the AST2010 course. The first show involves a demonstration of solar system scale, short presentation on the current night sky, and the fulldome movie *Two Pieces of Glass*, the *Amazing Telescope*. The second show begins with a demonstration emphasizing light spectra, continues with the current night sky, and features the fulldome movie, *Wonders of the Universe*.

During the 2010 winter and fall semesters, there were respectively more than 600 students enrolled in the Descriptive Astronomy, AST2010, course. All were required to attend the two shows mentioned above. Given the planetarium has only 59 seats, we had to schedule several presentations of the above two shows to enable all enrolled students to visit the planetarium and see the shows. Shows were also presented during the Summer 2010 to AST2010 students and opened for extra credit in a variety of physics courses. In all, more than 100 shows were presented to AST2010 students during the last year.

## 5.3 K-12 Shows

Planetarium shows were presented to K-12 students from various schools of the urban Detroit area. Shows include interactive demonstrations, a discussion of the current night sky, viewing of a fulldome movie, and a presentation of *Phantastic Physics Phenomena* and/or a Science Activity.

Schools that visited the planetarium are listed in Table X.

Table 1 List of Schools that visited the planetarium

- Universal Academy
- University Liggett
- Huntington Woods Women's Senior Group
- Henry Ford Academy, School for Creative Studies
- Cub Scout Troop
- Michigan Health Academy
- SEEMA
- Michigan Technical Academy (Charter School)

Marcus Garvey Academy  
 Troy Athens High School  
 McClennan Home School High School Group  
 KB White Elementary School  
 WSU Kids Summer Camp  
 DAPCEP Program K-12 Shows  
 CISV-Childrens International Summer Village  
 WSU School of Medicine (High School)  
 WSU Summer Jam Camp  
 Pathfinders-Earn 'Stars' Honors  
 WSU Computer Science Dept Summer Camp  
 YMEP-Young Men in Engineering Program  
 WSU Kales Summer Institute  
 WSU Math Corps  
 WSU QuarkNet Program  
 Bennie Elementary School  
 Detroit Intl Academy  
 Osborne High School  
 WEB Dubois Prep Academy  
 Troy Athens High School  
 Aisha Shule-WEB Dubois

#### 5.4 Planetarium Show Statistics

The planetarium has featured a total of 247 presentations from the beginning of January to the end of December 2010. A total of 1914 children and 3743 adults, for a grand total of 5657 visitors have attended a planetarium show in 2010. This constitutes a near 10-fold increase relative to prior years.

The following table displays the number of presentations in 2010 of the various fulldome movies owned by the planetarium.

Table 2: Breakdown of the number of Fulldome movies featured in 2010

<b>Movie</b>	<b>Number of shows presented</b>
Two Small Pieces of Glass	106
Stars of the Pharaohs	12
Wonders of the Universe	93
Oasis in Space	20
Black Holes	3

## 5.5 Science Under the Dome Lectures

Pat Domanski revived the notion of presenting regular monthly lectures to the general public and initiated a new lecture series titled Science Under the Dome. The Planetarium has so far featured four such lectures

November, 2010: Have You Seen Higgs?	Prof. Robert Harr
December, 2010: Exploring the Night Sky from Your Backyard	Prof. Peter Hoffmann
January, 2011: The Golden Age of Cosmology	Prof. David Cinabro
February, 2011: Lorax's Unless: Alternative Energy and the Future of Earth Prof.	Claudio Verani

The first two lectures were extremely well attended thanks to the large email lists we now use for dissemination of information about the planetarium and department events. We thus decided to request RSVP from people who wish to attend the lectures. The lecture by Prof. Cinabro filled up within two days of being announced. Given this resounding popularity, we asked Prof. Cinabro to present a second lecture on the Saturday following his first lecture. He agreed, and we were pleased to find that second lecture was also RSVP to capacity. However, we observed that roughly 60% of the people who had RSVPd for the lecture actually came to the lecture - probably owing to the very cold weather on Jan 21st and 22nd.

Lectures are advertised through fliers posted on campus, announcements posted on the Planetarium website, University e-blast mailings, and private email listings we have compiled during the last year of operation. The fliers produced to advertise the first three lectures are presented in Fig 1. Also note that Pat Domanski and Claude Pruneau were guests on the WDET Craig Fahle show to talk about the Planetarium's new Science Under the Dome Lecture series.

Lectures are planned for the months ahead, and we are actively pursuing recruitment for other lecturers.

<p><b>Science Under the Dome</b></p> <p>Wednesday, November 3 7:00 PM</p> <p>The first, in a new series of science lectures, to be held at the Wayne State University Planetarium. Sponsored by the Department of Physics and Astronomy, and Sigma Xi.</p>	<p><b>Science Under the Dome</b></p> <p>Friday, December 3 7:00 PM</p> <p>The second, in a new series of science lectures, to be held at the Wayne State University Planetarium. Sponsored by the Department of Physics and Astronomy, and Sigma Xi.</p>	<p><b>Science Under The Dome</b></p> <p>Saturday, January 22 11:00 am</p> <p>... a new series of science lectures, held in the Wayne State University Planetarium. Sponsored by the Department of Physics and Astronomy, and Sigma Xi.</p> <p><b>January 21st date is FULL!</b></p>
<p><b>HAVE YOU SEEN THE HIGGS?</b></p>  <p>Theories of particle physics are very successful at predicting the many properties of particles. Astonishingly, the one thing missing from the theory is why particles have mass. The favorite theory explaining why particles have mass predicts a new particle, the Higgs boson. <b>But alas, this mysterious particle has not yet been found!</b> <i>Stranger than science fit!</i> on this fascinating topic will be the subject of a lecture by <b>WSU Experimental Particle Physicist Professor Robert F. Harr</b>.</p> <p><b>As an added bonus</b>, after the lecture join us for a look at the Current Night Sky in the dome of the Wayne State University Planetarium!</p>	<p><b>Exploring the Night Sky from Your Backyard</b></p>  <p><b>Would you like to be a backyard astronomer but don't know where to start?</b> Join us for this fun lecture, as WSU physicist, Dr. Peter Hoffmann talks about his experiences as a backyard astronomer. Learn about telescopes, binoculars, and what you need to know to get started in this fun and exciting pastime.</p> <p><b>As an added bonus</b>, after the lecture join us for a look at the current night sky and at deep space objects in the dome of the Wayne State University Planetarium!</p>	<p><b>The Golden Age of Cosmology</b></p>  <p>Join us for an exciting lecture in the WSU Planetarium, by WSU physicist, Professor David Cinabro, as he presents: <b>The Golden Age of Cosmology</b>. Professor Cinabro reviews our modern understanding of Cosmology, and the study of the origin and fate of the Universe. He will describe the pillars of the Big Bang model for the origin of the Universe, and highlight the rise of the dark sector with evidence that our Universe is dominated by this as yet unconfirmed, dark matter and dark energy. "This leads to a possible, unfortunate fate for our Universe," says Professor Cinabro.</p>
<p><b>DIRECTIONS</b></p> <p>The Wayne State Planetarium is located at 4841 Cass Avenue (at the corner of Cass and Warren Avenues) on the lower level of the Old Main Building on the campus of Wayne State University. Enter Old Main through the Cass Avenue entrance, go down the stairs and walk straight ahead. You will see the doors of the planetarium on your right.</p>  <p><b>Admission is Free</b></p> <p>WSU Planetarium 4841 Cass Avenue, Detroit, MI 48201 Planetarium &amp; Outreach Office 313-577-2107 <a href="http://planetarium.wayne.edu/">http://planetarium.wayne.edu/</a></p>	<p><b>DIRECTIONS</b></p> <p>The Wayne State Planetarium is located at 4841 Cass Avenue (at the corner of Cass and Warren Avenues) on the lower level of the Old Main Building on the campus of Wayne State University. Enter Old Main through the Cass Avenue entrance, go down the stairs and walk straight ahead. You will see the doors of the planetarium on your right.</p>  <p><b>Admission is Free</b></p> <p>WSU Planetarium 4841 Cass Avenue, Detroit, MI 48201 Planetarium &amp; Outreach Office 313-577-2107 <a href="http://planetarium.wayne.edu/">http://planetarium.wayne.edu/</a></p> <p><b>THE ORION NEBULA (M42, NGC 1976)</b> This photograph was taken by WSU Physicist, Dr. Peter Hoffmann, using an Orion Starblast 4.5" Newtonian Telescope and an Orion S502-2 camera. Exposure time was 90 seconds.</p>	<p>Students are captivated by a lecture presented by Professor Cinabro.</p> <p><b>An RSVP is REQUIRED for this FREE Lecture.</b></p> <p><b>To reserve your seat, please go to our website:</b> <a href="http://planetarium.wayne.edu/">http://planetarium.wayne.edu/</a></p> <p>...and follow the links to <b>Science Under the Dome</b>. You will be reserving your seat on the WSU Events Calendar. Once you RSVP, an email confirmation will be sent to you. If you do <b>not</b> receive a confirmation, please contact: <a href="mailto:outreach@physics.wayne.edu">outreach@physics.wayne.edu</a></p>  <p><b>DIRECTIONS</b></p> <p>The WSU Planetarium is located at 4841 Cass Avenue (at the corner of Cass and Warren Avenues) on the lower level of the Old Main Building on the campus of Wayne State University. Enter Old Main through the Cass Avenue entrance, go down the stairs and walk straight ahead. You will see the doors of the planetarium on your right.</p> <p><b>Planetarium &amp; Outreach Office</b> 313-577-2107</p> <p><b>Wayne State University Planetarium</b></p>

Figure 1: Fliers used to advertise the first three Science Under the Dome lectures. Full-page fliers are provided in Appendix.

## 6 Marketing and Public Relations

The planetarium group, formed in early 2010, initially spent some time to establish a marketing and public relations strategy and identify its goals. Marketing activities included the development of a logo, deployment of signage, planetarium murals, brochures, and a professionally designed website. The following section presents the marketing strategy elaborated during the early months of 2010 and the ensuing developments of a Planetarium logo, Planetarium signage, brochures, etc.

### 6.1 Marketing and Public Relation Strategy

The planetarium group spent some time developing a marketing and public relations plan for the planetarium and department. The Marketing and PR strategy can be summarized as follows:

- Use the planetarium as an advertisement and promotion tool for the Department, College, and University.
- Increase the visibility and exposure of the Wayne State Planetarium, its shows, and various programs.
- Promote the Planetarium as an important and rather unique asset for the University Science programs, particularly the BA in Astronomy, and astronomy courses.
- Promote the Planetarium shows as a source of educational entertainment,
- Promote the Planetarium K-12 activities and learning center.

- Promote the Planetarium as a venue for special University events, e.g. Alumni meetings, Fundraisers, Executive meetings with an entertainment component.
- Promote the Planetarium as a venue for external organizations special events such as luncheons, receptions, etc.

The Planetarium group met in Feb 2010 with Francine Wunder, Director of Corporate/Public Affairs (Office of Marketing and Communications), Cheryl Yurkovich, Associate Director of Corporate/Public Affairs, Julie O'Connor, Director, Research Communications, and Carolyn Berry-Director, Strategic Planning & Marketing Operations, to gather input and suggestions on the elaboration of marketing and a PR plan for the Planetarium. Based on their suggestions, prior discussions, and various other considerations, the group has established a Planetarium Marketing and Public Relations strategy as follows:

- Planetarium website
  - to inform the Wayne State community and public of Planetarium activities and programs,
  - to provide various types of information and links relevant to space and astronomy enthusiasts
- Planetarium Posters,
  - to advertise the planetarium and specific shows or events
- Planetarium Brochures,
  - to advertise the planetarium and learning center, their programs and activities
- Special Events,
  - Alumni meetings, Fund Raisers, etc.
- Facebook, Twitter,
- Planetarium Fan Club, or membership
- Mass emails, e-Blast,
- Radio Ads (WDET)
- Establish contacts with various University entities, and external organizations

We envision contacts and promotion with the following people, groups and organizations. Contact and collaboration with some of these people or groups have already been established and shows scheduled.

On campus contacts include:

- Student Senate (formerly called Student Council)
- Activities Committee (David Strauss, Dean of Students) WSU School Admissions, Counselor Appreciation Luncheon (Judy Tatum-Senior Director of Admissions)
- Alumni Association
- Sue Mosey, UCCA-University Cultural Center Association- Art & Culture Dev't in Midtown.
- CLAS and University Development Offices (Michael Mirto, et al.).
- Dean of Students Office- Clubs & Organizations

- Business Operations- K-12 Summer Camp-evening events- Kid and parents look to do something in the evening at the end of camp day. Contact Nivellas group.
  - MATH Corps
  - Computer Science Summer Camp
  - etc.
- Contact Ms. Judy Tatum, Senior Director of Undergraduate Admissions & New Student Orientation at ei2645@wayne.edu or 313-577-9753
- Residence Halls- Tim Michaels- Advertise and give public shows to on campus residents
- International / Staff groups
- AP events/Honors College (J Heron)

Off campus/external organizations of special interest include:

- Society of Engineers, and similar organizations,
- Board of Visitors of other colleges,
- DMC- Detroit Medical Center, Henry Ford Medical Center, and similar organizations,
- Greater Detroit Chamber of Commerce, Detroit Economic Growth Corporation, Detroit Business Bureau, and similar organizations,
- Inside Detroit- Visitors to businesses- Part of Detroit Orientation Institute- Contact Jeanette Pierce
- Large Corporations, e.g. Ford, GM, etc.
- Luncheons
- Fund raisers
- Community groups, private interest groups, such as churches/synagogues- Institute of Gerontology, Merrill Palmer Institute, University Prep School, etc.

Wunder et al. additionally suggested the following ideas and opportunities:

- Participate in the production of One Minute Professor videos.
- Organize a Departmental Career Day
- Organize recurring Department Open House events
- Involve the Society of Physics Students (SPS)
- Publish stories on Wayne.edu
- Participate to the Aim Higher WSU Campaign- Highlight P & A Research
- Organize a ‘Coming Out’ Party in the Fall
- Jobs- What are the employment opportunities for students with a Physics/Astronomy Degree? Promote future outlook for those student- Ex: Biomedical Physics- October World Stem Cell Summit
- Testimonials after graduation- Track the success of students who graduated from WSU P & A programs
- Partnership with Detroit Historical Museum, DIA, Hilberry Theatre, Museum of African History, etc.

- Couple Physics/Planetarium events with other depts. Such as Biology, Chemistry, Geology, etc.
- Make use of upcoming Wayne State Digital Signage on campus
- Highlight personal stories- Senior Citizen Groups, Cub Scouts, etc.
- Develop VIP/Donor relationship with organizations and WSU,
- Volunteer at DPS- Reading Core Program- volunteers go to elementary schools to help students read- offer them a planetarium show

Examples of special events where the planetarium could serve as a venue include:

- Wayne State Alumni Events,
- Fund Raising Events,
- Wayne State New Faculty Reception in the Fall,
- Networking Events- Meetings at McGregor or other sites on campus,
- High School Counselor Appreciation Luncheon (Scheduled this year for April 14)

Progress on the development of a Planetarium website, brochures, signage and murals is discussed in this report.

The Planetarium constitutes a key component of the outreach program of the Physics Department and the College of Liberal Arts and Sciences. In order to fulfill this role, it must be well advertised, easy to locate, as well as attractive and inspiring.

## 6.2 Planetarium Logo

An appealing and attractive logo is key to attract the attention of the public and provide a signature to the planetarium. We hired the services of the marketing team of Christa Mowry (Wayne State marketing division) to design a planetarium logo. The team produced a few candidates. After review, the Planetarium group opted for the design shown in Figure 2. The solar eclipse diamond ring effect design is found to be very appealing and provides a very good signature of the planetarium.



*Figure 2: Planetarium Logo*

## 6.3 Signage

Various directional and informational signs were installed at the Old Main building. This includes a sign on Cass avenue (figure 1), and multiple directional signs within the building (figure 2), and a new name sign above the door of the planetarium. We also added a display case



just outside the planetarium to advertise its shows and event schedule. The display case also provides contact and show booking and reservation information.



Figure 3: Signage outside and inside the Old Main building.

## 6.4 Planetarium Space Murals

Three large "space" murals were designed and created in the planetarium hallway (Old Main building lower level). The design was created by Justin Raju of the team of Christa Mowry (Wayne State marketing division). The murals were printed on wallpaper and the wallpaper mounted on the walls of the hallway by an outside contractor.

The murals are presented in figure 4.

The murals provide a distinctive signature of the Wayne State planetarium. We now use portions of the images for promotional purposes including announcements, invitations, brochures, and various other promotional items.

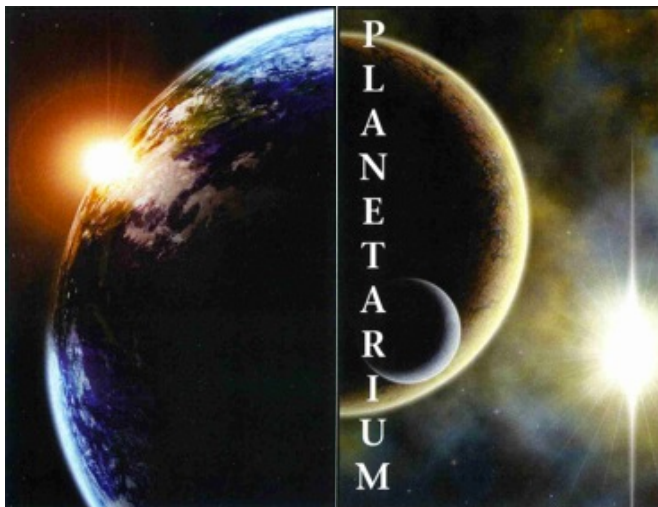




Figure 4: Three murals setup in the hallway of the Planetarium

## 6.5 Planetarium Website

We hired the website design team of Nick DeNardis (Wayne State marketing division) to design the planetarium website. The web design team worked in collaboration with the graphic artist who designed the murals to create web graphics that are very appealing and professional. The site is based on a content management system designed by the team of DeNardis and programmers of the C&IT division.

The site was launched on Jan 14, 2011. It is accessible at <http://planetarium.wayne.edu>. Figure 5 presents a snapshot of the home page of the planetarium webpage.

Wayne State University | Pipeline | Directories | Contact WSU | A-Z Index

AIM HIGHER

PLANETARIUM

About the Planetarium  
Planetarium Shows  
Educational Programs  
Plan your Visit or Special Event  
Astronomy & Space Information  
Support  
Contact Us

NEWS

B.A. Astronomy undergraduate degree program a reality!  
Planetarium to offer Saturday afternoon shows

EVENTS

JAN 28 Public Planetarium Show  
JAN 29 Public Planetarium Show  
FEB 25 Public Planetarium Show  
VIEW MORE EVENTS

SCHEDULE

JANUARY 2011

SU	M	TU	W	TH	F	SA
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22

WSU STUDENT LINKS  
Planetarium resources for Wayne State students

Teacher's Link K-12  
Planetarium and Astronomy Resources for K-12 Teachers

COMMUNITY  
Planetarium and Astronomy Resources for the Community

THE OTHER SIDE OF INFINITY  
BLACK HOLES  
Featured Movie of the month. Running time: 24 minutes

Figure 5: Home page of the planetarium website.

## 6.6 Posters and Brochures

The planetarium and outreach team is developing posters, fliers and brochures to advertise and promote the planetarium shows and outreach programs, as well as the academic programs of the Department of Physics and Astronomy.

Table 2 displays a list of the fliers/brochures created or maintained by the Planetarium and Outreach group.

<b>Table 2: List of fliers and brochures developed or/and maintained by the Planetarium and Outreach team</b>			
<b>Brochure Title</b>	<b>Style</b>	<b>Last Revision Date</b>	<b>Description</b>
Academic Programs	1/2 cardstock	1/20/11	Lists acad. programs, other programs, and student testimonials
Quick Fact Sheet	single sheet	2/8/11	Mainly facts about the department of P&A, programs, research, faculty awards
Planetarium Welcome	1/2 cardstock		Welcome to planetarium; we present shows for...; our programs
General Physics Programs	3-fold	2/23/11	What is physics; list of physics programs; student testimonials
Biomedical Physics	3-fold	2/08/11	New degree program; suggested course sequence; courses
Astronomy Brochure	3-fold	2/8/11	New degree program; suggested course sequence; courses
Planetarium/Educational Programs	3-fold	2/16/11	Educator's Brochure with our mission; shows; audience; fulldome films
Planetarium/Public Programs	3-fold	2/16/11	Brochure for the general public with our mission; shows; audience; fulldome films
Planetarium/Donor Brochure	4-fold		Mission; Outreach; Service to Community; How to Give
Planetarium	single sheet		Planetarium one-page flier
MAMS	single sheet	11/16/10	Master of Arts in Multidisciplinary Science for Secondary School Science Teachers
REU	single sheet		Current REU programs offered
Camp Cosmos	single sheet		Flier advertising Summer program for children

**Table 2: List of fliers and brochures developed or/and maintained by the Planetarium and Outreach team**

Science Under the Dome - ongoing	single sheet		Flier advertising P&A Science lecture series in the planetarium
Faculty List	3 single sheets		List of faculty with photos
Campus Life	single sheet		Collage of campus photos with descriptions
Special Events Poster	single sheet		Poster in our Planetarium display case that advertises us as a place to bring your club

The above items are provided in full format in appendix to this report.

## 6.7 Department Programs Promotional Package

The planetarium and outreach team is developing a promotional package to be used in high school visits and at outreach and promotional events.

The package consists of a Wayne State folder including the following items

- Greetings letter from the Department chair
- Listing of the Department Faculty
- Quick Fact Sheet
- Campus Safety Sheet
- Campus Life Sheet
- 1/2 Card stock on Academic Programs
- BS Physics Brochure
- BS Biomedical Physics Brochure
- BA Astronomy Brochure

These items are provided in appendix of this report.

## 6.8 Advertisement in High School Magazines

We have undertaken an attempt to advertise the Department of Physics and Astronomy programs in various high school magazines. Many high schools publish magazines by and for their students. We identified AdNet as a service to place ads, at a relatively low cost, in such high school magazines. While very many high schools are accessible through this service, we have decided, for our first attempt at using this system, to select only those schools in the urban Detroit area that feature Advanced Placement in Physics programs. The ads submitted to these magazines are presented in Figure 6.

Given repetition is key in marketing; we plan to use the AdNet service during a three-year cycle in order to evaluate its effectiveness. The cost of this program is rather small compared to

other marketing investments currently made by the Department. It is thus worth pursuing this approach for a few years in order to evaluate its efficacy in recruiting students from local high schools.

The list of High Schools selected for the first round of advertisement is presented in Table 3.

**Three great programs, one great university...**

**B.A. in Astronomy**

*Do you love space exploration and telescopes, and love learning about stars, galaxies, planetary geology and cosmology? Then you'll love this new degree program!*

- Combines classes in physics and astronomy.
- Learn how to operate and present shows using our new state-of-the-art digital planetarium!
- Leads to exciting and rewarding careers at NASA, in scientific journalism, teaching, or advanced studies in astronomy and physics.

**B.S. in Biomedical Physics**

*Do you love physics, chemistry, engineering, math, and want to go into medicine, medical technology, or pharmacy? Then BMP is for you!*

- Applications of physics to biology and medicine.
- Quantitative approaches to problems in the Life Sciences.
- Earn a Master's degree in Biomedical Engineering in just one more year through our unique program!

**B.S. in Physics**

*Are you naturally curious? Do you wonder why things are the way they are and what makes them work? Do you want to learn about the basic laws of nature and the interconnectedness of everything around us? Then Physics is for you!*

- Physicists conduct research into the basic laws of nature and also make use of these ideas to design and develop new technologies.
- This degree program prepares you for graduate studies in physics.
- Leads to many exciting careers in academia and teaching, government and private industry R&D, medical physics, the computer industry, financial markets, and a host of other areas.

**Have you seen Wayne lately? Wayne State University ...one of Detroit's best kept secrets!**

Dynamic and modern mid-town campus, affordable education with world-class instructors, safe campus environment, shops, restaurants, bookstores, cafes, new student apartments...all of this in the midst of Detroit's cultural district: Detroit Institute of Arts Museum, Detroit Science Center, Charles H. Wright Museum of African American History, and more...

*See for yourself; you'll be surprised!*

[www.physics.wayne.edu](http://www.physics.wayne.edu)

**The Department of Physics & Astronomy** invites you to visit. Contact one of the following program advisors to learn about our exciting physics programs:

**B.A. Astronomy:** Professor David Cinabro [cinabro@physics.wayne.edu](mailto:cinabro@physics.wayne.edu)

**B.S. Biomedical Physics:** Professor Peter Hoffmann [hoffmann@wayne.edu](mailto:hoffmann@wayne.edu)

**B.S. in Physics:** Professor Sean Gavin [sean@physics.wayne.edu](mailto:sean@physics.wayne.edu)

**Three great programs - one great university...**

[www.physics.wayne.edu](http://www.physics.wayne.edu)

**B.A. in Astronomy**

*Do you like space exploration and telescopes, and like learning about stars, galaxies, planetary geology and cosmology? Then you'll love this new degree program!*

- Combines classes in physics and astronomy.
- Learn how to operate and present shows using our new state-of-the-art digital planetarium!
- Leads to exciting and rewarding careers at NASA, in scientific journalism, teaching, or advanced studies in astronomy and physics.

**B.S. in Biomedical Physics**

*Do you like physics, chemistry, engineering, math, and want to go into medicine, medical technology, or pharmacy? Then BMP is for you!*

- Applications of physics to biology and medicine.
- Quantitative approaches to problems in the Life Sciences.
- Earn a Master's degree in Biomedical Engineering in just one more year through our unique program!

**B.S. in Physics**

*Are you naturally curious? Do you wonder why things are the way they are and what makes them work? Do you want to learn about the basic laws of nature and the interconnectedness of everything around us? Then Physics is for you!*

- Physicists conduct research into the basic laws of nature and also make use of these ideas to design and develop new technologies.
- This degree program prepares you for graduate studies in physics.
- Leads to many exciting careers in academia and teaching, government and private industry R&D, medical physics, the computer industry, financial markets, and a host of other areas.

**Have you seen Wayne lately? Wayne State University ...one of Detroit's best kept secrets!**

Dynamic and modern mid-town campus, affordable education with world-class instructors, safe campus environment, shops, restaurants, bookstores, cafes, new student apartments...all of this in the midst of Detroit's cultural district: Detroit Institute of Arts Museum, Detroit Science Center, and more! *See for yourself; you'll be surprised!*

**The Department of Physics and Astronomy** invites you to visit. Contact us to learn about our exciting programs:

**B.A. Astronomy:** Professor Dave Cinabro [cinabro@physics.wayne.edu](mailto:cinabro@physics.wayne.edu)

**B.S. Biomedical Physics:** Professor Peter Hoffmann [hoffmann@wayne.edu](mailto:hoffmann@wayne.edu)

**B.S. in Physics:** Professor Sean Gavin [sean@physics.wayne.edu](mailto:sean@physics.wayne.edu)

Figure 6: Ads to be placed through the AdNet service into magazines of high school featuring an advanced placement in physics program. Full ads are provided in Appendix.

Table 3: Listing of Schools where ads are being submitted.

- Adlai E. Stevenson High School
- Dakota High School
- Lake Shore High School
- South Lake High School
- Henry Ford II High School

**Table 3: Listing of Schools where ads are being submitted.**

Livonia Churchill High School  
 Grosse Pointe North High School  
 Grosse Ile Township High School  
 Grosse Pointe South High School  
 Seaholm High School  
 Andover High School  
 Rochester High School

## 6.9 Other Marketing Activities

Additional marketing activities conducted by the Planetarium and Outreach team include the following items and events.

The Wayne State Planetarium is now on Facebook.com

<http://www.facebook.com/group.php?gid=420390340759&v=wall>

Recording of two “One Minute Scholars” video for promotion of the University academic programs.

[http://wayne.edu/oneminutescholar/video.php?id=23,](http://wayne.edu/oneminutescholar/video.php?id=23)

The fire tornado with Jeff Conn

[http://wayne.edu/oneminutescholar/video.php?id=22,](http://wayne.edu/oneminutescholar/video.php?id=22)

Laser Pointers with Claude Pruneau

Pat Domanski and Claude Pruneau were interviewed on the WDET (NPR) Craig Fahle show on Jan 6th, 2011 to talk about the new Science Under the Dome lecture series.

[http://wdet.org/audio/craigfahle/281/CFS\\_1-5\\_Podcast.mp3](http://wdet.org/audio/craigfahle/281/CFS_1-5_Podcast.mp3) (fast forward to 45 min)

## 7 Outreach Publications and News

The Planetarium and Outreach group participates towards the publication of a large array of magazines, and news media.

### 7.1 Physics & Astronomy Matters Newsletter

The Physics & Astronomy Matters newsletter, published every other year, is distributed to Department members and alumni and provides information about recent departmental activities and events. The magazine is authored and produced by Prof. Jo Wadehra and Pat Domanski.

### 7.2 Light & Dark Matters: The Physics and Astronomy Online Magazine

Pat Domanski is main writer and editor of the Department’s Online Magazine Light and Dark Matters accessible Online through the Planetarium Website and the Departmental website.

This magazine is used to report on Departmental research activities, publications, discoveries, and other Faculty highlights. Visit <http://physics.wayne.edu/light-dark/>.

### **7.3 Meet a Scientist rubric**

The rubric Meet a Scientist, featured on the planetarium website, promotes the research and accomplishments of members of the Department of Physics and Astronomy.

### **7.4 Research News, Press Releases, and University Publications**

The Planetarium and Outreach team actively gathers news from the Department faculty for the promotion of the research, discoveries, and accomplishments of members of the Faculty, their collaborators, postdocs, and students.

News releases are produced on a per need basis and posted on the Department of Physics and Astronomy website. High profile accomplishments are also communicated to the Office of the Vice-President for Research for production of official University press releases and articles in various university publications.

## **8 Outreach Activities**

The planetarium and outreach team organizes or takes part in various Outreach events on and off Wayne State campus. Our purpose is to publicize the existence of the Planetarium and promote the excellent academic programs of the Department of Physics and Astronomy.

The following subsections present a list of all events organized or attended by members of the team during the last year.

### **8.1 Winter/Spring 2010**

- **WSU On-Campus Events**

#### **Scholars Day**

Advertise department programs and offer scholarships to academically strong high school seniors (and their parents) who are potential incoming freshman

**Metropolitan HS Counselors luncheon event (WSU Admissions):** Presentation advertising Physics and Astronomy programs; planetarium programs

#### **WSU Spring Open House**

Presentation of department programs for freshman at exhibitor's table; physics and astronomy demos.

#### **CLAS Alumni Association**

First annual Spring CLAS Alumni Association "Science at Old Main" event; featuring a planetarium show, special science demos and socializing; encouraging future contributions by alums to WSU Planetarium programs.

- **Off-Campus Events**

**Troy Athens High School****Countdown to NASA: Astronauts Downlink from International Space Shuttle for K-12 students; follow-up NASA Celebration Community Night**

Participant in national NASA outreach event for K-12 students. Advertise programs and present demos to over 800 visitors.

**Canadian Windsor/Essex County HS Counselors luncheon (WSU Admissions):** Presentation advertising Physics and Astronomy programs; planetarium programs

**Canadian Windsor/Essex County HS Students and Parents (WSU Admissions):** Advertise programs

**Wayne, Oakland and Macomb County Intermediate School District (ISD) Science Leaders**

**Meetings:** Presentations advertising Physics and Astronomy programs; planetarium programs

**Dearborn Center for Math, Science and Technology**

Continuing established connection to outstanding high school students through department faculty (Professor Gavin Lawes)

**Michigan Science Teachers Association Annual Conference, Lansing MI:** Advertise College programs; including MAMS, CS camps: Math Corps; WSU Planetarium; Physics and Astronomy, Geology, Environmental Science, etc.

**Sidewalk Astronomy at Metropolitan Beach**

Presentation of Phantastic Physics Phenomena to 400 visitors; advertise department programs

**8.2 Fall 2010**

- **WSU Events**

**iStart Fair**

Event for incoming freshman after the New Student Convocation; advertise department programs.

**Student Organizations and Student Services Day**

Event for all WSU students takes place outdoors on **Gullen Mall**. Advertise programs.

**WSU Fall Open House**

Event takes place at **Alumni House**, Saturday, October 16; 9 am- 12 noon; presentation of programs at exhibitor's table; physics and astronomy demos.

**Noel Night**

Planetarium shows, science demos and seasonal music as part of this Cultural Center-wide celebration of the coming Holiday Season (dozens of institutions; thousands of visitors).

- **Off-Campus Events**

**Astronomy at the Beach, Kensington Metropark**



Advertise Physics, Astronomy and Planetarium programs at two exhibitors tables; sign up for Camp Cosmos; present “Fire and Ice” demo (Professor Kauppila), “Table Top Cosmology” demo (Professor Cinabro) to general audience; WSU Planetarium (for the first time) as official sponsor, along with Cranbrook Institute of Science, Detroit Science Center and others.

### **Metropolitan Detroit Science Teachers Association/Detroit Area Council of Teachers of Mathematics Conference**

Advertise College programs; including MAMS, CS camps: Math Corps; WSU Planetarium; Physics and Astronomy, Geology, Environmental Science, etc.

### **Wayne, Oakland and Macomb County Intermediate School District Science Leaders Meetings:**

Presentations advertising Physics and Astronomy programs; planetarium programs

### **Dearborn Center for Math, Science and Technology**

Continuing established connection to outstanding high school students through department faculty; presentations by Professor Gavin Lawes

## **8.3 Year Round/Ongoing**

- **WSU Events**

### **SEMAA Shows**

Planetarium shows are performed each term for all K-12 students enrolled in the NASA outreach program Science Engineering Mathematics and Aerospace Academy. Shows are also performed for the parents in the SEMAA Parent Café.

### **Phantastic Physics Phenomena**

Presentations (in conjunction with planetarium shows) of physics demos for visiting groups

### **Presentations to all introductory physics and astronomy classes (see below)**

Each term, a presentation of department programs is made in each one of the introductory physics and astronomy classes.

- **Off-Campus Events**

### **Faculty presentations**

Professor Gavin Lawes at Dearborn Center for Math, Science and Technology; Professor David Cinabro at the Detroit Science Center; Senior Lecturer Jeffrey Conn at the Henry Ford Academy; Professor Claude Pruneau at Emerson Middle School

### **Detroit Metropolitan Area Physics Teachers**

Present department programs and give talks at meetings of this group of high school and college physics; yearly, department hosts a meeting for group. Jeffrey Conn is current president of group.

- **Other Science Activities**

## Geology

Grades K-4: Interactive group discussion with poster boards addressing the science of geology, why it is important, and what a geologist wears in the field. Hands on 'Show n Tell' with various rocks, minerals, fossils, and natural resource materials.

Grades: 5-12: PowerPoint presentation and active discussion of geology (definition, importance, environment, and resources). Definition of minerals, different rock types, and hands-on activity such as Identifying Minerals based on the Physical Property of Hardness-using Mohs Scale.

## Environmental Science

Middle/High School: Review Undergraduate WSU study, 'Measuring Ambient Air Quality in Detroit and Windsor, discuss results, current environmental impacts (such as Global Warming and Pacific Garbage Patch), future of earth's environment and why scientists are needed.

## 8.4 Promotional Visits

The outreach team visited classrooms of the following courses during the Fall 2010 to advertise the BS in Physics, BS in Biomedical Physics, new BA in Astronomy, and the Department's Research Experience for Undergraduate student (REU) program.

SCHEDULE OF CLASSES	Location	Time/Days	INSTRUCTOR	Visitor
	46 Derooy	12:50-2:40 MW	J. Conn	J. Conn
	150 Gen Lec	5:30-7:20 MW	Saperstein	C.Pruneau
	HPWDS	6:00 - 10:00pm W	J. Thakur	J. Conn
	718 OAK	9:00 - 1:00 pm Sat	Matt Taylor	J. Conn
PHY 1020 - Conceptual PHY (3 cr)	2025 SCI	9:35 - 10:30 MWF	Gagik Yeghiyan	C.Pruneau
	2025 SCI	10:40-11:35 MWF	J.J. CHANG	C.Pruneau
	2009 SCI	6:00 - 7:20 pm T TH	Jeff Conn	J. Conn
PHY 1070 - Energy & Environment	1109 SCI	11:45 - 12:40 MWF	SAPERSTEIN	C.Pruneau
PHY 1420 - Atoms & Stars	0115 PHY	6:00 - 9:40 W	BOWEN	J. Conn
PHY 2130 - General PHY	2009 SCI	9:35-10:30 MWF	ZHOU	J. Conn
PHY 2130 - General PHY	2009 SCI	12:50 - 1:45 MWF	REHSE	J. Conn
PHY 2130 - General PHY	100 Gen Lec	06:00 - 07:20 T TH	Mukhopadhyay	J. Conn
PHY 2130 - General PHY	0622 Oakland	6:00 - 7:25 M Th	Anupam Kumar	J. Conn
PHY 2140 - General PHY	0150 LEC	10:40-11:35 MWF	REHSE	J. Conn
PHY 2140 (CLL) Oakland Ctr	0528 Oak Ctr	06:00-07:30pm T W	WIDJAJA	J. Conn
PHY 3300- Intr.: Modern	185 PHY	5:30 - 6:55 MW	KARCHIN	P. Karchin

## 9 Planetarium Development

### 9.1 Equipment Acquisitions

### 9.2 High Definition Digital Projection System

The year started with the completion of the installation of a Spitz High Definition Digital projection system. The system was fully calibrated and operational by mid January. Shows began in earnest on Jan 11, 2010 with a presentation to students of the Universal Academy of the fulldome movie Two Pieces of Glass: the Amazing Telescope.

The purchase of this system was made possible in part by a generous grant from the 2009 University Omnibus fund, and by contributions from donors.

### **9.3 Remotely Controlled Discharge Tubes**

We installed remotely controlled AC power system for the control of discharge tubes and lighting systems used in presentations and discussions of the light spectrum of stars.

#### **9.3.1 E-Media System**

We were fortunate to receive an additional grant from the Omnibus fund in 2010. This grant was used to purchase an e-media system from Spitz Corp and a desktop computer system.

The e-media system includes a rack mounted computer, and a high power LCD projector. It is now deployed at the planetarium to complement the fulldome projector. It is used in particular for PowerPoint type presentations during the Science Under the Dome lectures.

#### **9.3.2 Uninterruptible Power Supply (UPS)**

The AC power has relatively poor stability in the Old Main building. The planetarium room is subject to somewhat frequent short losses or surges of power. There was in fact a case when a surge of power lead to a small electric fire in an electric signs in the entry room leading to the planetarium. The fire caused no damage but we realized it would be wise to protect the costly projection system. We thus decided to proceed to the purchase of a large uninterruptible power supply (UPS). The system was ordered and received in Dec 2010. We are eagerly awaiting its installation by the university facilities division workers.

### **9.4 Software Acquisitions**

We purchased a 30 users license of the Starry Night software. Starry Night is used by the Planetarium members to design new shows. It will be used in the context of camp cosmos by kids to learn and study astronomy. It will also be used in laboratories associated with the new BA in Astronomy program.

### **9.5 Movie Acquisitions**

The Projection system purchased from Sptiz was bundled with the Starry Night, the ATM4 software and seven full dome movies. We were also very fortunate to receive a substantial donation from Emeritus Prof. Gerry Dunifer for the acquisition of an 8th movie. The planetarium now owns lifetime licenses for the following movies.

Oasis in Space  
 Two Small Pieces of Glass: The Amazing Telescope  
 Invaders of Mars  
 Stars of the Pharaohs  
 Wonders of the Universe:  
 Seven Wonders  
 IBEX: Search for the Edge of the Solar System  
 Black Holes: The Other Side of Infinity

Descriptions of these movies are available on the Planetarium website (<http://planetarium.wayne.edu/shows/full-dome.php>)

## **9.6 Other Planetarium Improvements**

Following the dismissal of the old projection system, and the acquisition of the new digital projection system, the planetarium room was left in a relatively chaotic state. A fair amount of papers and equipment had also been accumulated over the years and gathered in the two closets adjoining the main planetarium room. The installation of the new projector thence provided an impetus to clean up the planetarium room and remove much of the unnecessary equipment, old magazines, papers, and various other items.

Dawn Niedermiller spearheaded the cleanup and cleanout project which resulted in a more efficiently run planetarium. We also acknowledge the volunteer work of John Niedermiller who carried out a thorough cleaning and repair of the carpet of the main planetarium room.

As mentioned elsewhere in this report, we had added signage inside and outside the Old Main building to advertise the presence of the planetarium and provide directions to it. We also added three murals, and a presentation glass case.

## **10 Instructional Team and Show Development**

A planetarium is about shows! We strive to train our personnel in order for them to present high quality and professional shows. We are also actively recruiting new instructors so that we can eventually substantially increase the number of shows presented at the planetarium.

### **10.1 Instructors Training at the Spitz Summer School**

Four of our instructors attended the 2010 Spitz summer school in Philadelphia. They were trained in the operation of the STARRY NIGHT and ATM4 software used at the planetarium. The training also included tips and ideas about the development of shows.

### **10.2 Recruitment of New Planetarium Instructors**

We currently have six instructors qualified to present shows at our planetarium. While this may seem like a large number, it is in fact not. All of our instructors are only working part-time for the planetarium. Given we aim to substantially raise the number of shows presented on a weekly basis, we need to recruit additional instructors.

We have recruited and are now training four undergraduate students (Sarah Draugelis; Jaidaa Elbezra; Erin Nagelkirk; Nathan Joseph). We hope to be able to complete their training within a few weeks and integrate them in our instructor team to present shows on a regular basis. They will be remunerated on a per show basis for their service to the planetarium.

We are also reaching out to amateur astronomer organizations of all kinds in the Detroit Metro area to recruit additional instructors.

### **10.3 Development of New Shows**

We are currently working on the development of shows for K-12 student groups and for Wayne State students enrolled in the AST2010 course and BA in Astronomy program.

## **11 Camp Cosmos**

The Planetarium team created the concept of Camp Cosmos as a means to attract kids in our Departmental academic programs. Camp Cosmos targets adolescents in 9 to 11th grade. It is an astronomy + physics camp where kids will be exposed to a rich scientific environment. For the first year, given our limited resources, we are planning for a ten-day camp in June 2011 following the end of the school year.

Kids will attend interactive lectures in Physics and Astronomy and participate in a variety of hands on activities. They will work in teams towards the development of a mini planetarium show they will present to their parents on the last day of camp.

Dawn Niedermiller is acting coordinator of the camp. She has identified and made contact with key resources on campus to establish the logistic foundation of the camp. This includes issues related to liability, obtaining one-cards for campers, fitness center activities, identifying and reserving a room with 20 computers, procuring STARRY Night software licenses, and more.

## **12 Future Goals and Projected Developments**

The planetarium has had a very productive and successful year with a more than ten-fold increase in the number of shows presented and people visiting the planetarium. A good fraction of the visitors were from the Wayne State community, and more particularly students enrolled in our Department's AST2010 classes. While servicing our Wayne State student community is one of the key objectives of the planetarium, we now wish to expand our targeted audiences to include an increasingly large number of K-12 students and adults from the Detroit Metro area in order to also fulfill our outreach mission, to publicize Science and Wayne State academic programs, particularly those of the College of Liberal Arts and Sciences and the Department of Physics and Astronomy.