HAMPTON UNIVERSITY
The Standard of Excellence, An Education for Life

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Hampton University Physics Department Pegasus Trips
MSU University December 1-3, 2016 Report
Prepared by: Jessica Freeman and Paul Gueye

General overview of the Pegasus Trips

In the Fall 2016, the Physics Department of Hampton University established a new annual initiative labeled "*Pegasus Physics Trips*", modeled after the 2014 precursor trip to the National Radio-Astronomy Observatory of the Physicists Inspiring the Next Generation (www.nsbping.org) program. It is a series of one to two days long visits to four majority institutions (Yale University, Michigan State University, Brown University and Purdue University), two per semester, from 22 (undergraduate and graduate) students attending Physics and Engineering Departments at four Historically Black Colleges and Universities: Hampton University, Spelman College, Elizabeth City State University and Howard University. The participants also include faculty members and staff.

The primary goal for these visits is to provide an avenue for undergraduate students to attend graduate school, for MS students to consider pursuing a PhD degree and for PhD students to look for postdocs. They also provide an additional emphasis on the needed qualifications and attitude to apply and be successful in graduate school.

The name, affiliation and classification of the participants are listed in Appendix A. It consists of 22 students: 20 undergraduate students, three graduate students from which 11 are males and 11 are females. Not all the students attended each of these visits, primarily for academic constraints. Individual reports from all participants were requested along with responding to a post-visit survey.

MSU trip

This short report focuses on the second visit that was held at Michigan State University on December 1-3, 2016, following the one to Yale on November 10-11, 2016. As for the previous trip, a copy of the schedule is listed in Appendix B. The post-survey form and results are also appended to this summary along with all individual responses as provided.

The participants (Figure 1) flew in from Hampton University on Thursday, since it was more cost effecive than riding the bus as it was done for the visit to Yale. Some of the participants arrived around noon and others late in the evening. The former group was able to attend an evening diner with the MSU Alliances for Graduate Education and the Professoriate (AGEP), which consists of a community that includes all graduate students across all disciplines.

While the overall visit was well appreciated (44.4% ranked it as good), the activity that was ranked the highest was the presentation by Dr. Artemis Spyrou (72.7% ranked as excellent) followed the ones by Stephen Thomas and the individual meetings with faculty (both with a 63.6% ranked as excellent), then the presentation by Dr. Judi Brown-Clark (54.5% ranked as good). For the latter, a 1 hr video conference call was setup on the Monday immediately

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following the visit (December 5, 2016 at 6:00pm) to elaborate on the experience and possible apprehension from African America students going to a majority institution.

Figure 1: Participants to the Pegasus trip to Michigan State University on December 1-3, 2016.

There were several outcomes from this visit:

- Similar to the experience at Yale, many of the undergraduate students, although very strong academically, did not consider going to graduate school before this visit coming from an HBCU. This experience changed their minds, including the strong possibility to apply to an Research I Institutions. The first experience with Yale changed their mind and the second trip to MSU sealed their conviction of being able to apply to these institutions;
- Being part of a group of students from HBCUs on this visit, re-enforced the notion of a cohort as a supportive group to attend graduate school because of the low number of African American students at majority institutions;
- The best agenda item was the individual meetings with faculty: similar to Yale, customizing the visits for each student rather then having a broad description of programs had a tremendous effects on their thinking of applying to gradate school;
- The interactions with the graduate students for bot Yale and MSU has proven to be a key factor in putting a positive perspective and attitude toward pursuing a graduate degree;
- The presentation by Steven Thomas about the MSU Summer Research Opportunities Program (SROP) program from the student's perspective and not from the program perspective was also very well received: most of the students discussed and indicated a strong desire to apply to the program during the Friday night dinner;
- The work ethic and demand in graduate school, including the application process, seem to have provided a sense of "more hard work" while still being an undergraduate student for better preparedness.

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Appendix A: List of participants to the HU Physics Pegasus Trips

Last	First	Classification	Gender	Institution	Major
Gueye	Paul	Department, Chair	Male	Hampton University	Physics
Pretlow	Monica	Administrative Assistant	Female	Hampton University	Physics
Freeman	Jessica	Graduate Student	Female	Hampton University	Physics
Guererro	Juan	Graduate Student	Male	Hampton University	Physics
Fernando	Ishara	Graduate Student	Male	Hampton University	Physics
Andrews	Bria	Undergraduate Student	Female	Hampton University	Physics
Burney	Kyle	Undergraduate Student	Male	Hampton University	Physics
Roots	Maurice	Undergraduate Student	Male	Hampton University	Physics
Miller	Matthew	Undergraduate Student	Male	Hampton University	Engineering
Johnson	Camara	Undergraduate Student	Female	Hampton University	Engineering
Mabulu	Katiso	Undergraduate Student	Male	Hampton University	Engineering
Matthews	Breyah	Undergraduate Student	Female	Hampton University	Engineering
Cole	Maya	Undergraduate Student	Female	Hampton University	Engineering
Rucker	Basseemah	Undergraduate Student	Male	Hampton University	Engineering
Wofford	Alia	Undergraduate Student	Female	Elizabeth City State University	Physics/Biology
Thomas	Brianna	Undergraduate Student	Male	Howard University	Physics
Smith	Sergio	Undergraduate Student	Male	Howard University	Physics
Blake	Ameer	Undergraduate Student	Male	Howard University	Physics
Hunt-Stone	Keenan	Undergraduate Student	Male	Howard University	Physics
Floyd	Hanna	Undergraduate Student	Female	Spelman College	Physics
Gordon	Ashlee	Undergraduate Student	Female	Spelman College	Physics
McCray	Mayla	Undergraduate Student	Female	Spelman College	Physics
Pruitt	Kimara	Undergraduate Student	Female	Spelman College	Physics
Walker	Lakirah	Undergraduate Student	Female	Spelman College	Physics

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Appendix B: Michigan State University Visit Schedule

HBCU visit – December 1-3, 2016

Thursday December 1

- Travel
- 6:00-8:00pm - AGEP meeting, BPS1425 0 Dinner provided (https://grad.msu.edu/agep/meeting/)

Friday December 2

- 8:30-9:00am : Breakfast – NSCL/FRIB – Room 1221AB
- 9:00-9:10am: **Remco Zegers** – NSCL Associate Director for Nuclear Science
- 9:10-9:25am: **Steven Thomas** – Graduate School
- 9:25-9:40am: **Kirsten Tollefson** - Associate Chairperson for Graduate Programs – Department of Physics & Astronomy
- 9:40-9:55: **Percy Pierre** – Engineering
- 9:55-10:10am: **Judi Brown-Clarke** – Diversity Coordinator BEACON
- 10:10-10:20am: **Artemis Spyrou** – Associate Director for Education NSCL/FRIB
- 10:20-10:30: Break
- 10:30 – 12:30 Individual meetings
- 12:30-2:00pm Physics: Lunch with graduate students / WaMPS, Engineering
- 2:00 – 4:00pm Individual meeting
- 4:00pm – NSCL Tour
- 5:30pm Social Activities with graduate students

Saturday December 3

- Travel

Physics Pegasus Trip - MSU December 1-2, 2016

Survey from the two-day physics visit to Michigan State University on December 1-2, 2016

* Required

1. **AGEP Thursday Night Dinner** *
   Your opinion about the information provided and its usefulness to your future aspiration
   Mark only one oval.

   - ◯ N/A
   - ◯ Poor
   - ◯ Average
   - ◯ Good
   - ◯ Excellent

2. **Remco Zegers Presentation** *
   Your opinion about the information provided and its usefulness to your future aspiration
   Mark only one oval.

   - ◯ N/A
   - ◯ Poor
   - ◯ Average
   - ◯ Good
   - ◯ Excellent

3. **Steven Thomas Presentation** *
   Your opinion about the information provided and its usefulness to your future aspiration
   Mark only one oval.

   - ◯ N/A
   - ◯ Poor
   - ◯ Average
   - ◯ Good
   - ◯ Excellent

4. **Kirsten Tollefson Presentation** *
   Your opinion about the information provided and its usefulness to your future aspiration
   Mark only one oval.

   - ◯ N/A
   - ◯ Poor
   - ◯ Average
   - ◯ Good
   - ◯ Excellent

5. **Pierce Pierre Presentation** *
   Your opinion about the information provided and its usefulness to your future aspiration
   Mark only one oval.

   - ◯ N/A
   - ◯ Poor
   - ◯ Average
   - ◯ Good
   - ◯ Excellent

6. **Judi Brown-Clark Presentation (from Friday and Monday)** *
   Your opinion about the information provided and its usefulness to your future aspiration
   Mark only one oval.

   - ◯ N/A
   - ◯ Poor
   - ◯ Average
   - ◯ Good
   - ◯ Excellent

7. **Artemis Spyrou Presentation** *
   Your opinion about the information provided and its usefulness to your future aspiration
   Mark only one oval.

   - ◯ N/A
   - ◯ Poor
   - ◯ Average
   - ◯ Good
   - ◯ Excellent

8. **Individual Meetings (morning and afternoon)** *
   Your opinion about the information provided and its usefulness to your future aspiration
   Mark only one oval.

   - ◯ N/A
   - ◯ Poor
   - ◯ Average
   - ◯ Good
   - ◯ Excellent

9. **Physics Lunch with WaMPS Graduate Students** *
   Your opinion about the information provided and its usefulness to your future aspiration
   Mark only one oval.

   - ◯ N/A
   - ◯ Poor
   - ◯ Average
   - ◯ Good
   - ◯ Excellent

10. **Friday night Dinner with Physics Graduate Students** *
    Your opinion about the information provided and its usefulness to your future aspiration
    Mark only one oval.

    - ◯ N/A
    - ◯ Poor
    - ◯ Average
    - ◯ Good
    - ◯ Excellent

11. **NSCL Tour** *
    Your opinion about the information provided and its usefulness to your future aspiration
    Mark only one oval.

    - ◯ N/A
    - ◯ Poor
    - ◯ Average
    - ◯ Good
    - ◯ Excellent

12. **Best Agenda Item** *

Your opinion about what you liked the most during your visit
Mark only one oval.

- AGEP Thursday night dinner
- Presentations (R. Zegers, S. Thomas, K. Tollefson, P. Pierre, J. Brown-Clark)
- Friday night dinner with physics graduate students
- Friday lunch with WaMPS graduate students
- Individual meetings
- NSCL Tour

13. **Please indicate how globally (below) and how each of the following (next questions, short answers) added to your experience**

Mark only one oval.

- N/A
- Poor
- Average
- Good
- Excellent

14. **Jessica Freeman**

15. **Artemis Spyrou**

16. **Judi Brown-Clark**

17. **MSU Faculty**

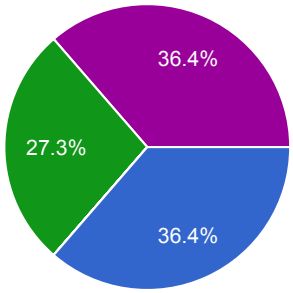
18. **MSU Graduate Students**

11 responses

Publish analytics

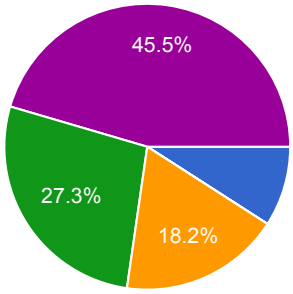
Summary

AGEP Thursday Night Dinner



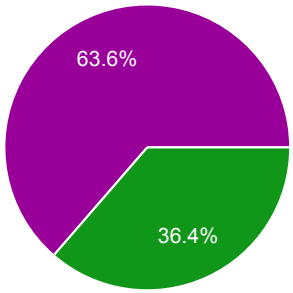
N/A	**4**	36.4%
Poor	**0**	0%
Average	**0**	0%
Good	**3**	27.3%
Excellent	**4**	36.4%

Remco Zegers Presentation



N/A	**1**	9.1%
Poor	**0**	0%
Average	**2**	18.2%
Good	**3**	27.3%
Excellent	**5**	45.5%

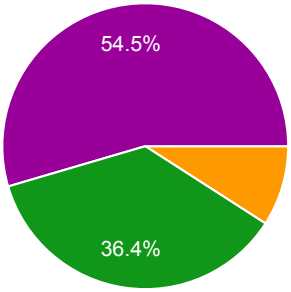
Steven Thomas Presentation



N/A	**0**	0%
Poor	**0**	0%
Average	**0**	0%
Good	**4**	36.4%
Excellent	**7**	63.6%

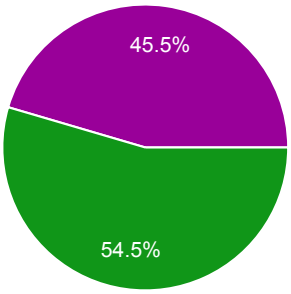
Kirsten Tollefson Presentation

N/A	**0**	0%
Poor	**0**	0%



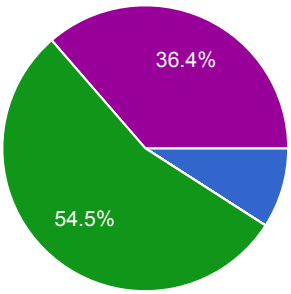
Average	**1**	9.1%
Good	**4**	36.4%
Excellent	**6**	54.5%

Pierce Pierre Presentation



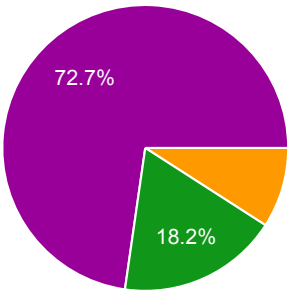
N/A	**0**	0%
Poor	**0**	0%
Average	**0**	0%
Good	**6**	54.5%
Excellent	**5**	45.5%

Judi Brown-Clark Presentation (from Friday and Monday)



N/A	**1**	9.1%
Poor	**0**	0%
Average	**0**	0%
Good	**6**	54.5%
Excellent	**4**	36.4%

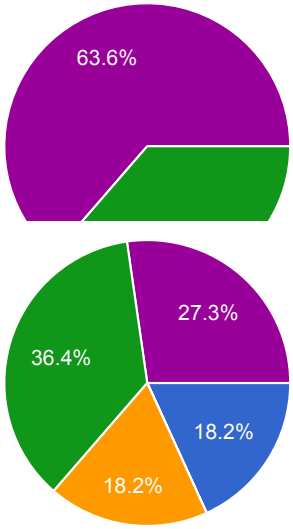
Artemis Spyrou Presentation



N/A	**0**	0%
Poor	**0**	0%
Average	**1**	9.1%
Good	**2**	18.2%
Excellent	**8**	72.7%

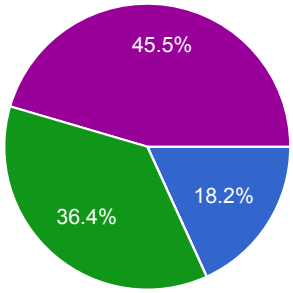
Individual Meetings (morning and afternoon)

N/A	**0**	0%
Poor	**0**	0%
Average	**0**	0%
Good	**4**	36.4%
Excellent	**7**	63.6%



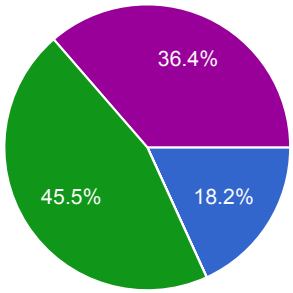
N/A	**2**	18.2%
Poor	**0**	0%
Average	**2**	18.2%
Good	**4**	36.4%
Excellent	**3**	27.3%

Friday night Dinner with Physics Graduate Students



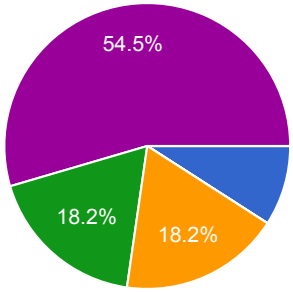
N/A	**2**	18.2%
Poor	**0**	0%
Average	**0**	0%
Good	**4**	36.4%
Excellent	**5**	45.5%

NSCL Tour



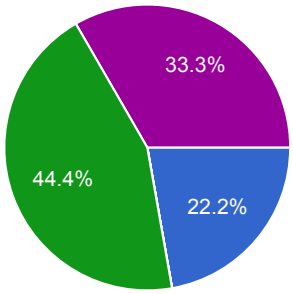
N/A	**2**	18.2%
Poor	**0**	0%
Average	**0**	0%
Good	**5**	45.5%
Excellent	**4**	36.4%

Best Agenda Item



AGEP Thursday night dinner	**1**	9.1%
Presentations (R. Zegers, S. Thomas, K. Tollefson, P. Pierre, J. Brown-Clark)	**0**	0%
Friday night dinner with physics graduate students	**2**	18.2%
Friday lunch with WaMPS graduate students	**2**	18.2%
Individual meetings	**6**	54.5%
NSCL Tour	**0**	0%

Please indicate how globally (below) and how each of the following (next questions, short answers) added to your experience



N/A	**2**	22.2%
Poor	**0**	0%
Average	**0**	0%
Good	**4**	44.4%
Excellent	**3**	33.3%

Jessica Freeman

N/A

supportive

Efficient

Artemis Spyrou

N/A

Very helpful

Was a wonderful host and did well in acclamating us to the MSU campus life.

She was very informative and definitely gave me a great impression of MSU

Thorough

Judi Brown-Clark

Ms Brown-Clark gave us a lot of good information Friday and Monday being able to ask additional questions was very much appreciated.

very influential

Was a great speaker put things into perspective as it pertained to being African American and looking to embark on a journey there at MSU

Enjoyed her talk thoroughly!! Very engaging and provided needed information about applying

to grad school

Inspiring

MSU Faculty

Prof Pierre especially was very helpful. Speaking to him about the program was very warm and insightful.

Welcoming, although they were confused on our purpose

Was great to see the professors and faculty I would most likely be working with if I decided to make the move to MSU. Saw some similarities and differences between them and my current faculty and gave me a perspective on how to weigh the pros and cons.

Great. They were wonderful and all involved in amazing research projects!

Helpfu

MSU Graduate Students

They were helpful with any questions they had. They made me want to consider Michigan State very seriously.

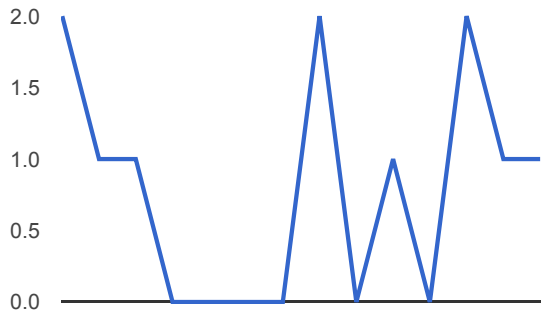
enthusiastic, great community

Very down to earth and wanted us to know how it was really going to be if we decided to make the transition from an HBCU to a PWI

They were great. Excellent hosts, very informative, and definitely made all of us visiting students feel welcome

Friendly

Number of daily responses



Ishara Fernando
PhD Candidate
Department of Physics
Hampton University
Hampton, VA 23668
USA

December 6, 2016

Dr. Paul Gueye
Assistant Professor of Physics
Department of Physics
Hampton University
Hampton, VA 23668
USA

Dear Dr. Paul,

First of all, I would like to thank you for organizing such a great visit for us to see the opportunities at Michigan State University (MSU). We were basically three groups and there were four graduate students including my self. MSU has arranged our flights, ground transportation lodging with great hospitality.

On Friday, December 2nd the organizers came up with a very efficient schedule for all the students based on their individual interests. We had a several introductory talks followed by a nice breakfast. The introductory talks gave us a general overview about MSU and the Cyclotron Lab. Then, we have started meeting professors according to the individual schedules that they have arranged. It was fantastic. I had an opportunity to talk to five theory professors namely, Prof Scott Bogner, Prof. Heiko Hergert, Prof. Andrea Shindler, Prof. Witold Nazarewicz and Prof. Scott Pratt; and also some experimental physics professors. They gave me a very nice overview of their research interests and their current ongoing research work. Actually, I started seeing some applications which I can apply my knowledge relevant to their work. Since I'm looking for post-doc position to expand my skills and knowledge, this was an excellent opportunity. Prof Scott Bogner, Prof. Heiko Hergert, Prof. Andrea Shindler encouraged me to apply for a post-doc position. I have already sent my application materials to Prof Scott Bogner, Prof. Heiko Hergert, Prof. Andrea Shindler.

Also, the graduate students at MSU welcomed us very warmly and the treated us with great hospitality. They have a very good amalgamation among their student body. My special thanks should go to Dr. Paul Gueye for his great effort to help our students to find opportunities for their prospective future goals. Also, I'm thanking Prof. Artemis Spyrou and the secretary at MSU, Ms. Pinckney Tabitha for arranging everything. Also, I would like to thank all the professors at MSU who arranged their personal schedules for me to meet.

Thank you.
Sincerely,
Ishara Fernando

MSU Trip

I can honestly say that in my opinion the MSU trip was a great experience. As a person that is focused on try to learn from everything thing that I do and interact with, I was very pleased that the MSU faculty and students provided me with knowledge that I find to very useful towards my goals.

When traveling to MSU I was uncertain of what to expect from the trip. My expectations of treatment were not exactly defined towards MSU. With my uncertainty left in the back of my mind I let the trip run its course. As soon as the dinner/meetings of the first night had started in full swing I felt right at home. the atmosphere was engaging and interactive. I felt that I was welcome to the people around, and the events of the trip its self.

The welcoming environment persisted as the trip continued. When we arrived for the breakfast introduction I was slightly shocked at the personalized experience. the schedule for the day was tailored to the students interests. My experience with the scheduling was very good. I was not paired with many people involved in umbrella of physics as my interests, but this was not a negative experience. I had the opportunity to talk to many great people that do fairly interesting work. The meetings that I had were engaging to the point where the short meet time was not enough.

I am very appreciative of of the interactions that I had with the chosen faculty and selected grad students. I had such a great deal of enjoyment with the physics atmosphere. I found nothing but kindness and welcoming environments.

Written by

Maurice E. D. Roots

Thank you to Dr. Gueye again for this opportunity. I enjoyed this visit a little bit more than the Yale visit. The Fraunhofer Center for Coatings and Diamond Technologies lab in particular was of interest to me because semiconductors is one of my areas of interest. I think there would be more opportunity for me if I were to get into Michigan State's graduate program.

Professor Pierre was extremely helpful in our meeting. He took us around all the labs and meeting with faculty and talking to them about the program gave me a better insight. One of the main things that deters me from PWI schools is trying to adjust to the social environment. My concern is being able to network with people from such different backgrounds. Professor Pierre's words were very encouraging. Along with Professor Pierre, Professor Tim Hogan was helpful in informing students about Michigan State University's graduate program.

Ms. Brown-Clark's answering our questions in the conference call was another good indicator to look into Michigan State's programs. The capabilities at the MSU labs are something I would only dream of being able to be a part of.

Visiting the robotic fish lab was exciting. The graduate interns were able to show us the robots they built to establish communication underwater which was of interest to me because they used Arduino software to code their microcontroller boards. This helped me connect to my senior design project where we use Arduino software and hardware.

I am currently getting all my application requirements together and plan on applying in the next coming weeks. If I were to attend Michigan State, I feel like I would be able to find my place with the community Ms. Brown-Clark was telling us about. I am so thankful for the opportunity to be a part of the group for these trips.

MSU Visit

I'd just like to thank Dr. Gueye again for this wonderful opportunity. As we began this trip I was noticing the change in atmosphere from Yale and surprisingly enjoyed it more. We learned about the multiple research programs going on at MSU from the Fraunhofer Research Center to the CANVAS Research Center. At Fraunhofer we learned about their different diamond coating techniques for their transistors and diodes. Then there was CANVAS and that stood for connected and autonomous networked vehicles with active safety, that was my favorite program and had me the most interested when discussing with Dr. Pierre and the MSU faculty, Tim Hogan. If I were to attend MSU the CANVAS program is the one, I'd be most interested in pursuing.

The individual meeting with Dr. Pierre was very encouraging as he talked with each of us about our individual skills and some of the research endeavors we've been a part of. He really seemed to care and want to know more about each one of us and that was something I believe the group hadn't really experienced before as it relates to PWI's. The AGEP meeting did a good job at trying to give some exposure to more networking opportunities with people who were and were not from the same backgrounds and really tried and help us relate with the multiple cultures around us, the only downside is that we weren't all able to make it. Although I consider myself one of the lucky ones who could be a part of that meeting, as it gave valuable insight to MSU's culture, I just wish we could've all gained that same exposure together as a group.

The capabilities of the MSU labs and all the accessible resources that go along with being a part of such an institution are something I would only dream of being a part of. I am currently constructing my application package and plan to gather all the needed requirements so that I can proceed in applying for the multiple opportunities - presented. If I were to attend Michigan State, I feel as though I'd be able to find my place with the community and find my niche in the workload as they have a wide array of topics to get lost in. I just want to thank Dr. Gueye and all that are involved in putting these trips together as they are just the right exposure needed to make educated decisions on my post-baccalaureate venture.

Our past trip to Michigan State University was very eventful. We received an amazing experience in a short amount of time. We each enjoyed something individually from the labs introduced to the interaction between us and the grad students. Michigan State really sold all of us on attending the school after graduation or even during a summer.

The very first day at Michigan we got a little slice of what life would be like at the school as a grad student. We all sat in a meeting they had with grad students from many disciplines. This time was used to hear about different students' progress in their labs. I really admired this time because it established such a strong base of networking among grad students. This something I haven't seen at any other grad program at other schools so I found this unique. Not only does this make you aware of the research fellow students but this provides opportunities to collaborate.

During the Michigan State University (MSU), we could learn about MSU's research opportunities. For instance, we had the privilege to sit down with the chair of electrical and computer engineering, Dr. John Papapolymerou, and professor, Dr. Tim Hogan. Dr. Papapolymerou discussed the research opportunities that MSU has created for themselves. To illustrate our point, MSU are growing artificial diamonds to create diamond diodes. Diamond diodes has the capability to breakdown voltages at a great rate and is also a good thermal conductor. With the help of this new creative idea, this particular idea will create a more efficient diode as well as making more cost-efficient diamonds that can be sold to the general market.

The experience at MSU was eye-opening as an engineer. MSU focuses on the applications that their science can have, rather than doing science for science sake. The labs were expansive in not only size but discipline, from creating new isotopes with one of the world's most advanced cyclotrons to creating synthetic diamonds that will be used in transistors and

didoes that will create more efficient electronics and devices. All the research being conducted at MSU makes the future exciting. When it comes to student life at MSU, it was also very exciting, the campus is very large and once one adjusts to the temperature, the beauty of the campus can really be appreciated. Everyone was so kind and made the group feel at home and welcomed, this experience has truly made a difference on the group, and guarantee these students will be attending MSU in the future.