

# EPSNA Newsletter



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Since its formation in 2008, The Ethiopian Physics Society in North America (EPSNA) has been engaged in several activities over the last year to accomplish its mission of supporting education in physics and related disciplines in Ethiopia. The organization is in its 15<sup>th</sup> year, thanks to its dedicated contributing members and supporters. Thank you to those who took the first initiative to make EPSNA a reality. EPSNA would like to start this short newsletter with a picture of those who were at the APS 2008 March meeting to reflect back and think into the future as EPSNA strives to accomplish more than ever :



Please [click here](#) for more inspiring pictures.

Over the last year, the society has contributed to several efforts of advancing education and research in physics, material science and engineering in Ethiopia with help from the Ethiopian diaspora in North

America working in academia and industry. ESPNA initiatives that will be addressed in this issue:

1. Reconstruction of Gashena High School and Wegeltena Technical Vocational and Training College
2. Mentorship Program for high-achieving Ethiopian students
3. Recognition Awards to Undergraduate and Graduate Students for Achievement
4. 2023 EPS-EPSNA Virtual Summer School
5. Appeal from Addis Ababa University

## 1. Reconstruction of Gashena High School and Wegeltena Technical Vocational and Training College

EPSNA facilitated the collection of funds from members and non-members for the effort to rebuild learning institutions destroyed by the civil war in the Northern regions of Ethiopia in March 2022. A total of **\$10,100** was raised for this cause and **around 50 computers** were donated to [Gashena High School](#) and [Wegeltena Technical Vocational and Training College](#). These computers will provide the necessary resources for the students that attend these institutions to progress in their academic development. The computer donations were

all possible through your generous donations!



Donated computers at Gashena high school.



Students using the donated computers at Wegeltena Technical Vocational and Training College.

It is however worth pointing out that the computers are not housed in air conditioned rooms that may adversely affect their life time. While air conditioned rooms may be a luxury one cannot afford, we hope the school administrators and the regional

education officials come up with a better solution so that the students get the best out of these resources.

## 2. Mentorship Program for high achieving Ethiopian students

EPSNA initiated a mentorship program where high-achieving Ethiopian students were able to receive funding for their **GRE and TOFLE registration and graduate school application fees**. This year nine students were beneficiaries of this initiative. Students were also matched with mentors at the industry or academia level based on shared academic disciplines. These mentors were tasked with providing students with guidance through the often difficult to navigate journey of the graduate school application process.

EPSNA in collaboration with the Us based non-profit organization [MISALE INITIATIVE](#) also organized workshops for the mentees to gain knowledge on the following topics:

- CV/Resume writing
- Cover letters
- Effective communication via email, LinkedIn and other platforms to build one's network

Miss Nani Deti who is the founder of Misale Initiative has given a three day workshop for our mentees. EPSNA would like to express it's gratefulness to Miss Nani Deti and her organization.

Thank you for your donations to make this possible!

### 3. Recognition Awards to Graduate and Undergraduate Students for Scholarly Achievement

EPSNA has been recognizing outstanding students in Ethiopia pursuing studies for degrees in physics and related disciplines through an annual scholarship award since 2014. Fourteen students were recognized this year for their academic achievements. The annual recognition included appreciation letters from EPSNA and also provided monetary award for a total of **\$4,100**:

- Undergraduate Degree Level: 6 awards for **\$200** each
- Master's Degree Level: 3 awards for **\$300** each
- PhD Level: 5 awards for **\$400** each

Thank you for your donations to make this possible!

The following statement is from three randomly selected award recipients at each level:

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My name is Genene Shiferaw Aga. I was born in September 1985 in Arsi Robe to my father, Shiferaw Aga, and my mother, Dinbilal Hailu. I finished preparatory education in grade 12 at Robe Didea Secondary and Preparatory School in 2006. After passing the national exam, I enrolled at Wollo University and graduated in July 2009 with a 3.53 out of a 4-point cumulative grade. Then, in September/October 2009, I received a direct scholarship from the Ministry of Education and attended Barhir Dar University for my MSc studies. After following my MSc program for two years, I graduated with a specialization in "solid-state physics" in 2011. Following my graduation, I started my first job as a lecturer with my

specialization at Adigrat University; after a year, I shifted to Debre Birhan University. With sponsorship from Debre Birhan University, I started my Ph.D. program in "condensed matter physics" at Addis Ababa University. Throughout my Ph.D. program, I published four articles in reputable international journals, two as the first author and the others with colleagues. I also participate in international schools and workshops in person (ICTP, Trieste, Italy) and through an online program. Now I am also doing other scientific articles for publication. I married in 2015 and now have a five-year-old daughter.

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My name is Abezu Agegnehu. I am a second year MSc student at Adama Science and Technology University (ASTU). I finished my bachelor's degree at Jinka University in Applied Physics. I have taken various personal development training, such as powerful processes and habit building. I am currently conducting research on theoretical investigation of superconducting properties of hydrogen sulfide existing information about the electricity for the Partial Fulfillment of the Requirement for the Degree of Master's. My short term goal is to finish my research with good knowledge, grades and confidence. I plan to continue for the PhD program. I am confident now that I am enthusiastic to complete my MS program, and gain the knowledge and skills I need to pursue my dream. My vision is to produce a generation with goals and dreams by providing various personal development training alongside my teaching work.

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My name is Zebiba Fedlu, I am from a rural area near the city of Worabe located in the

SNNPR in Ethiopia. As a female student I faced a number of challenges in my education because by tradition women are not encouraged to go to school and compete with male in our society. Moreover, the only people I knew who had been to college were my teachers. Many of the older girls in my area got married in their childhood and dropped out of school by the 10<sup>th</sup> grade. There were no other role models in terms of academic aspirations or career options. Despite this fact, I had a dream of going to University College. I was able to complete my secondary and high school education with good academic performance. I always ranked in the top three students of my class and school at large. When I graduated from my high school I was awarded for scoring high grades from my school and our regional administration in the secondary school leaving examination (SSLE). I am passionate about being a great female physicist because I have been interested in physics since my childhood. That is why I joined Addis Ababa University to study physics education. Now I am a 3<sup>rd</sup> year physics student, the only female in my department. Most people including my family assume that my gender affects my education but I strongly disagree with that and I am proud of myself.

[Click here for more.](#)

#### 4. Virtual Summer School

EPS-EPSNA will be hosting a virtual summer school in physics, material science, mathematics and physics pedagogy from August 14<sup>th</sup> to August 18<sup>th</sup>, 2023. This virtual summer school will have centers in the four corners of Ethiopia to allow the participation of more than 50 first-generation universities. The center universities include Bahr Dar University,

Addis Ababa University, Jimma University, Haramaya University, Hawassa University and Mekelle University.

Registration for the virtual summer school is open. To register as a presenter or participant, please [click here](#). EPSNA would like to take this opportunity to ask EPS Ethiopia and center universities to please encourage faculties, students and the neighboring first-generation universities to register!

#### 5. Appeal from Addis Ababa University

Dr. Selemon Bekele, treasurer of EPSNA, had a chance to visit the physics department at Addis Ababa University (AAU) and spend some time with students engaged in experimental and computational research. The students expressed the many challenges they face as they strive to bring their study to completion. The most critical difficulty they cited was lack of essential lab equipment and computational resources. Added to this is the requirement to publish in a respected journal at least one paper at the master's level and two papers at the doctoral level in order to graduate in the four years maximum they are allowed to stay as students. The students doing experimental work often need to send their samples to countries such as South Africa for characterization. Samples could get lost, deteriorate and if all is well taking a long time to come back to them which makes research difficult for them, especially considering the graduation constraints placed on them. Modern computational resources are not available to students doing computational research. The only computer cluster bought at a cost of approximately \$40,000 USD several years ago is not functional anymore for lack of maintenance and manpower for system administration.

The system is probably outdated by now and a better solution may be to equip the computational lab with desktop computers with graphical processing units (GPU).

One can imagine that other universities around the country also face similar problems. The task for EPSNA is how to leverage the diaspora science community to raise awareness and solicit desperately needed help.

EPSNA encourages its members to read a summary of current challenges by **Professor Newayemedhin** of the physics department at AAU.

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The Materials Physics group in Addis Ababa University is led by Newayemedhin Tegegne (Associate Prof of Physics) and Fekadu Hone (Associate Prof of Physics). The group mainly uses the existing polymer lab in Addis Ababa University which was established more than 15 years ago. The lab was almost closed for a very long time till I and Dr Hone were recruited in September 2019. After we joined the department, we were able to graduate more than 6 MSc students and 1 PhD student. Currently, we have 1 PhD student defending his work in June/July, 2023 and 5 more PhD students in progress.

Dr. Fekadu leads the group in the synthesis of nanoparticles that can be utilized for a variety of purposes, including medicinal and solar energy conversion, and Dr. Newayemedhin leads the group in the fabrication and characterization of plastic solar cells. We have published around 30 papers as a group during the last four years. We are currently attempting to undertake some computational work to support and

explain the experimental findings. This work is done in collaboration with our partners.

As is widely known, experimental work necessitates a constant supply of consumables. Unfortunately, the consumables we buy from the local market are not of good quality for work. As a result, when we travel abroad, we frequently bring chemicals and, sometimes, solvents. Because the system does not permit it, this is usually covered by our per diem. This has caused significant difficulties in our operations. The other major issue we have is that we cannot buy anything from outside because the country is in the grip of a severe hard currency crisis. Before continuing with solar cell preparation, our students working on thin film preparation need to improve the surface wettability, which we generally do simply by dropping our solutions before depositing the samples. However, the reviewers have repeatedly asked us to quantify the device's wettability, which we have been unable to do until now. This might be accomplished with a basic Contact Angle Goniometer, which costs under \$2500 USD. Another critical issue is that two of our students working on computational work were unable to do as much work due to the limited processing capabilities of their computers. The university does not supply students with a computer. When we went to the market to buy the two computers, we were told that we would need more than 200,000 ETB. As a result, we are considering modifying their project because we cannot finance it.

It would be fantastic if EPS-NA could find a solution to assist us with one desktop and the contact angle goniometer.

Thanks in advance,

**Dr Newayemedhin Tegege**

On Behalf of Materials Physics Group

Department of Physics

Addis Ababa University

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Please [click here](#) to become a member.