

## Università degli studi di Napoli Federico II Chapter – Annual Report

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### Chapter activities:

Last year we received from SPIE 400\$ as Outreach Grant. At the beginning, we planned a list of experiments about optics phenomena such as reflection, refraction, wave propagation, polarization and so on, and we also planned to give a simple illustration of 3D cinema technology to secondary school students.

While implementing the activity, it turned out that we hadn't time enough to do all what we planned, so we focused on the implementation of a home-made 3D. The idea is to use polarization to produce stereoscopic images.

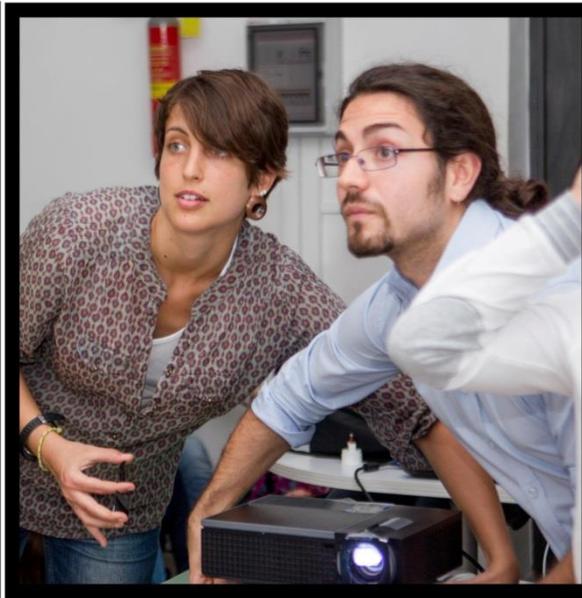
We used two projectors connected to two laptops to project on a silver screen (white screen doesn't preserve polarization) two stereoscopic images (i.e. slightly different images). We put polarizers with different orientation of the polarization axis in front of each projector, and we used polarizers with the same orientation of the axis as glasses.

We spent SPIE funds mainly to buy a projector (249€, about 327\$), with the remaining 54€ (about 71\$) we bought polarizers, silver paint (to make the screen) and other useful stuff, such as adhesive tape, pencils and so on.

We used also EPS (European Physical Society) funds to buy another projector (249€), which was necessary for the experiment.

We repeated the experiment in two schools, for a total amount of students involved of about 75 kids from 12 to 17 years old. We introduced ourselves as a group of students of Naples University involved in outreach activities sponsored by SPIE and EPS, stressing this point especially with the teachers.

Since we had a good feedback to this experiment, we're planning to repeat it in the next months or in alternative, we would like to set up some other different experiments about optics. Apart from this, a possible future project is a visit to ENEA, a local research center which activities are concentrated around thin film transistors, photovoltaic elements, nanomaterials, polymers and so on.



We also took advantage of the SPIE Visiting Lecturer programme, inviting professor Pal Ormos for a seminar about optical trapping of special shapes.

In the basic case the trapping is performed by optical tweezers; professor Ormos and his group work also on particles of helical shape that can be used to drive micromechanical machines used in biology, so he gave us an overview of his recent works.

A video of the seminar is available if requested.

Financial information:

	incoming	outcoming
Beginning balance	0\$	0\$
SPIE outreach grant	400\$	
EPS grant	344\$	
Projectors		654\$
Polarizers&other stuff		27\$
Ending balance	63\$	