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Scattering and absorption in 2D optics

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Curriculum Vitæ

Flavio Mariani was born on the 23rd of July 1983 in Foligno, a town in the center of Italy. Between 1997 and 2002 he attended Liceo Scientifico G. Alessi in Perugia, where he developed an interest in physics and informatics.

After an initial attraction to Engineering, he, soon after, turned to Physics, after realizing that he felt more attracted to the study of its laws. He obtained his bachelor degree in 2005 with a project conducted at a neutron spectrometer at the Institute Laue-Langevin in Grenoble.

He moved to Parma for his Master's degree in Solid State Physics. During these years he was active in the University Student Union as member of the executive board and elected student representative in the Academic Senate. He completed his Master's degree in 2012 with a research project on the vibrational properties of porphyrin molecules used as functionalization on core-shell SiC nanowires, under the supervision of prof. L. Cristofolini and prof. G. Salviati.

Interested in continuing in research in Europe, he moved to the Netherlands in June 2012 to join the Quantum Optics Group at Leiden University. Under the supervision of prof. M. P. van Exter he started an experimental project on random scattering media. During his graduate studies he learned cleanroom techniques for sample fabrication, performed numerical simulations of light scattering on nanostructures, designed and executed optical experiments on nanostructures comprising plasmonic hole-arrays, 3D scattering media and two dimensional textured silicon solar cells. Part of this research was done in collaboration with other research groups within the national research program "Stirring of Light!".

Following his personal passion for space, Flavio's career continues today as an optical engineer within the Earth Observation Programme of the European Space Agency (ESA).

List of publications

- Scattering of guided light by a single hole in a dielectric slab.
F. Mariani, M. P. van Exter,
Optics Express **23**, 17539 (2015).
- Angle resolved transmission through metal hole gratings.
F. Mariani, F. de León-Pérez, K. J. A. Vendel, L. Martín-Moreno, and
M. P. van Exter,
Optics Express **25**, 9061 (2017).
- Scattering media characterization with phase-only wavefront modulation.
F. Mariani, W. Loeffler, M. Aas, O. S. Ojambati, P. Hong, W. L. Vos
and M. P. van Exter,
Submitted for publication (2017).

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A thesis contains scientific results, but the road towards a PhD is a more complex learning experience, and a lot of people are part of the path leading to this booklet. On this final page I want to thank them.

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In the group I found many other people, passionate scientists with whom I shared fascinations, curiosities and visions. Michiel, Wolfgang, Dirk, Han, Gerard, Kier: it was a pleasure to spend time and have discussions with you, and learn something from each of you. A particular thanks goes to Henriette, our infallible and caring secretary. I also want to thank Aura and Sumant, postdocs at the beginning of my PhD, for their encouragement.

The names of colleagues and friends from my big university family that I would like to mention would fill a long list. I'm happy that my way crossed theirs, for their enthusiasm, their example, the times shared in the office, the common frustrations, the long discussions on science or philosophy or politics, the light-hearted moments of complicity, the stories from your country I haven't yet seen, the songs written together for those who left. If we shared any of these parts, you know your name is on that list, and our common memories are among the best moments of these years.

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