

Preface

This volume is a collection of papers presented at the 12th International Autumn Meeting «Gettering and Defect Engineering in Semiconductor Technology - GADEST 2007" held from 14th to 19th October 2007 in Italy at the EMFCSC (Ettore Majorana Foundation and Centre for Scientific Culture), Erice, Sicily. Erice, the only Sicilian town that has been inhabited since pre-history, sits 800 meters above sea level on a small peak near the coastal town of Trapani. Looking to the West, you can see Trapani and the salt pans, and to the East, the rugged coastline of Northern Sicily.

Since its foundation in 1963, the Erice Center has a long tradition as a privileged place for top level international Meetings and Schools. In turn, GADEST Conference is a traditional forum addressed at the interaction among scientists and engineers engaged in the field of semiconductor defect physics, materials science and technology.

Starting from 1985 in East Germany, the GADEST conference series, which was founded by Hans Richter, is biennially organized. At that time, the main purpose was to hold an informal gathering between eastern and western researchers in the field of defect engineering and getting, who were virtually separated by the Iron Curtain.

Also after the fall of the Wall, the Conference maintained its original character and still works as a meeting point for eastern and western scientists, with the goal to gather also people coming from far East.

The strengthening of the interactions and exchanges between the communities working in the fields of crystalline silicon for nanoelectronics and photovoltaics is a special ambition of this edition of GADEST Conference.

Fundamental aspects as well as technological problems associated with defects in electronic materials and devices will be addressed. The Conference will offer ample time for discussion and informal interactions between scientists and engineers. This will ensure a lively exchange of opinions and may lead to a better understanding of the complex aspects of defect engineering which over the years was starting to shift from art into real science.

The last meetings have encountered the "roaring of the Etna" in 2001 at Catania (Italy), the "quietness of the Spree river" in 2003 at Zeuthen (Germany) and the famous "Cicada song" in 2005 at Giens Peninsula (France).

This year GADEST Conference will lead you back to Sicily and its stunning views.

The present proceedings contain 11 invited and 106 contributed papers from over 70 research institutions and from more than 25 different Countries. The invited papers, presented by internationally recognized experts in the field, review the state-of-the-art and future trends in their respective research field. The symposium and its proceeding volume are organized in 9 sessions:

- Crystalline silicon for solar cells: single crystals, multi-crystalline Si, ribbons, Si thin films on substrates
- Silicon-based materials and advanced semiconductor materials (strained Si, SOI, SiGe, SiC, Ge)
- Impurities (oxygen, carbon, nitrogen, fluorine, metals) in Si
- Modeling/simulation of defects in Si/semiconductors
- Defect engineering in microelectronics and photovoltaics
- Gettering and passivation techniques
- Defect and impurity characterization (physical and electrical)
- Si-based Nanostructures (nanocrystals, nanowires, nanodevices)
- Silicon-based heterostructures and optoelectronics

A meeting like this can never be organized without the help and support of a skilled team. We gratefully acknowledge the help of all members of the Executive Committee and of the International Program Committee in setting up the conference.

The editors wish to thank the members of International Program Committee for selecting the invited and the contributed paper.

The chairman also wish to thank Drs Daniela Cavalcoli and Beatrice Fraboni of the Physics Department, PHo(d)S Lab, of the University of Bologna, and Dr Martina Zanarini of *SOFTEC Technology and Research*, the assistance of which in the organization of the Conference was really helpful.

Anna Cavallini

Hans Richter

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