

PREFACE

The International Autumn Meeting on Gettering and Defect Engineering in Semiconductor Technology (GADEST) is held bi-annually. The first meeting was organized in 1985 and has so far always taken place in East Germany. The main purpose was to hold an informal gathering between Eastern and Western researchers in the field of defect engineering and gettering. The 7th GADEST Meeting was held from October 5 to 10, 1997, in Spa, Belgium. The purpose of the meeting was to provide a forum for interactions between scientists and engineers engaged in semiconductor defect physics and materials science. Fundamental aspects as well as technological problems associated with defects in electronic materials and devices were addressed. Due to the broad range of topics going from theoretical analyses towards practical engineering solutions, the GADEST Meetings are unique and complementary to the other conferences and workshops in the field. The confrontation of people working in quite different disciplines ensured a lively exchange of opinions and led to a better understanding of the different aspects of defect engineering, which has over the years shifted from an art into a real science.

This Proceedings volume contains 1 Keynote and 14 Invited papers by internationally recognised experts in the field, each reviewing the state of the art and trends in their research field. Furthermore, 60 contributions by authors coming from more than 20 different countries are included.

Key research activities in the field of silicon crystal growth are focussing on the fabrication of large diameter wafers, i.e. 300 and 400 mm, as will be required for IC fabrication in the gigabit era. The defect control is also more and more relying on advanced fabrication approaches such as e.g. lower pulling rates and hydrogen annealing. To enhance the device yield, gettering techniques are remaining of key importance. Different approaches such as e.g. void gettering, low temperature processes and MeV implantation techniques are addressed in different papers. Both theoretical and practical gettering aspects are discussed. Although the first papers were published already in the fifties, research on oxygen in silicon remains a hot topic and of interest to a large group of people. Some recent insights in the field are reflected in a few papers. Beside precipitates, extended defects have an impact on the device performance and are therefore studied from both a theoretical and practical viewpoint. The nucleation and behaviour of dislocations are directly influenced by the strain field and the stress in the material. Two of the invited papers are devoted to stress in silicon and its impact on the device performance.

At this meeting, special attention has been given to erbium in silicon and radiation effects. Advanced materials, of which e.g. SiGe is a very good example, are gaining in interest for a variety of applications. For deep submicron CMOS and BiCMOS technologies, these heterostructures are very promising. As the symposium was not restricted to silicon, some papers on GaAs and CdTe were also included. Material and device diagnostics are addressed in a large number of presentations. Both a revitalisation of older techniques and the introduction of optimised and/or new techniques are essential for performing defect analysis and defect control at the microscopic level, required for future technologies and devices.

We express our sincere thanks to all authors who contributed to the Proceedings. The organisers are also deeply indebted to the sponsors for their support and to all those who have been involved in the organisation of the conference. Finally we would like to mention that the 8th International Autumn Meeting will be held in 1999.

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Contents - Survey

I. Keynote Address	1
II. Silicon Materials	7
III. Gettering Techniques	41
IV. Oxygen in Silicon	121
V. Erbium in Silicon	195
VI. Radiation Effects in Semiconductors	219
VII. Dislocations in Silicon	273
VIII. Defect Engineering	325
IX. Advanced Semiconductor Materials and Devices	399
X. Semiconductor Material And Device Diagnostics	447
 Author Index	 531
Subject Index	535