



# Participant Profile

for the  
**Turkish-German Strategy Workshop 2006**  
**TÜBİTAK Marmara Research Center**  
**Gebze, Turkey**  
**13 – 15 December 2006**



International Bureau (IB)  
of the Federal Ministry of  
Education and Research  
(BMBF)

## 1. Contact details and personal information

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<b>Postcode and City:</b>	Gebze 41470 Kocaeli		

<sup>1</sup> **Role/function** e.g. working group leader, managing director, postdoc, PhD etc.

<sup>2</sup> **Organisation type** e.g. university, research institution, small and medium enterprise (SME), industry etc.

<b>Working Group:</b>	<input checked="" type="checkbox"/> 1 Material Technologies <input type="checkbox"/> 2 Biotechnology, Genomics and Food <input type="checkbox"/> 3 Energy <input checked="" type="checkbox"/> 4 Information and Communication Technologies <input type="checkbox"/> 5 Environmental Protection, Climate Change and Sustainable Development
<b>Areas of activity:</b>	<input checked="" type="checkbox"/> research <input type="checkbox"/> technology development <input type="checkbox"/> demonstration <input type="checkbox"/> training <input type="checkbox"/> dissemination <input type="checkbox"/> other:
<b>Keywords characterising your area of research:</b>	<b>Please choose the appropriate key words (max. 5) from the following list:</b> <a href="http://www.cordis.lu/fp6/keywords">http://www.cordis.lu/fp6/keywords</a> Physics of semiconductors, nanoelectronics, optoelectronics, microelectronics, solid state physics



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**Expertise,  
technologies and  
infrastructures  
available in your  
institution:**

**Research activities / expertise:** Growth and subsequent characterization of semiconductor structures based on III-V compound semiconductors, Silicon based materials and Germanium, photonics and nanoelectronics

**Methods:** Molecular beam epitaxy, ECR plasma processing, vapor phase etching, photothermal displacement, CVD, CCD and phase sensitive detection

**Key technologies:** MBE, ECR, MCM

**Infrastructures:** ECR-MBE, characterization, porous semiconductor growth, low-k dielectric growth

**Key publications:** 1-S. Kalem, I. Romandic, A. Theuwis, Optical characterization of dislocation free Ge and GeOI wafers, Materials Science in Semiconductor Processing (Elsevier) (accepted for publication), 2006. 2-S. Kalem, Synthesis of ammonium silicon fluoride cryptocrys

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2-S. Kalem, Synthesis of ammonium silicon fluoride cryptocrystals on Silicon Applied Surface Science 236, 336(2004) <http://arxiv.org/abs/cond-mat/0410606>

3- S. Kalem, Sub-gap excited photoluminescence in III-V compound semiconductor heterostructures, Physica Status Solidi(b)221, 517(2000).

4- S. Kalem, A. Curtis, H.C. Chung, and G.E. Stillman Photoluminescence in GaAs and InGaP single layers on InP Solid State Communications 115, 221(2000).

5- S. Kalem, A. Curtis, H.C. Chung, and G.E. Stillman Photoluminescence in GaAs and InGaP single layers on InP Solid State Communications 115, 221(2000).

6- S. Kalem, A. Curtis, W.B. de Boer, and G.E. Stillman Low temperature photoluminescence in SiGe single quantum wells Applied Physics-A 66, 23(1998).

7- S. Kalem and B. Jusserand Physical properties of GaAs grown on glass Applied Physics-A, Vol.62, No.3, 237(1996).

8- S. Kalem and M. Rosenbauer Optical and structural investigation of stain-etched silicon Applied Physics letters 67, 2551(1995).

9- S. Kalem and G.E. Stillman Deep acceptor levels in molecular beam epitaxial high purity p-type GaAs Japanese Journal of applied Physics 33, Part 1, No.11, 6086(1994).

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- 12- S. Kalem and G.E.Stillman  
Deep acceptor levels in molecular beam epitaxial high purity p-type GaAs Japanese Journal of applied Physics 33, Part 1, No.11, 6086(1994).
- 13- S. Kalem  
Molecular beam epitaxial growth and transport properties of InAs epilayers, J. of Applied Physics 66, 3097(1989).
- 14- M.B.Patil, D.Mui, S. Kalem and H.Morkoc  
Reduced backgating effect in modulation doped field effect transistors by p-n junction isolation, Applied Physics Lett. 53, 2417 (1988).
- 15- W. Dobbelaere, D.Huang, S. Kalem and H.Morkoc  
InGaAs/GaAs multiple quantum well reflection modulators  
Electron. Letters 24, 1239(1988).
- 16- J. Chyi, S. Kalem, N.S.Kumar, C.W.Litton and H.Morkoc  
Growth of InSb and InAsSb on GaAs by molecular beam epitaxy  
Applied Physics Letters 53, 1092 (1988).
- 17- S. Kalem, J.Chyi, H. Morkoc  
Growth and transport properties of InAs epilayers on GaAs  
Applied Physics Letters 53, 1647(1988).
- 18- S. Kalem, J.Chyi, C.W.Litton, H.Morkoc, S.C..Kan and A.Yariv  
Electrical properties of InAs epilayers grown by molecular beam epitaxy on Si Applied Phys. Lett. 53, 562(1988).
- 19- W.Dobbelaere, S. Kalem, D.Huang, S. Unlu, H.Morkoc  
GaInAs/GaAs strained layer MQW electro-absorption optical modulator and self-electro-optic effect device  
Electron Letters 24, 295(1988).
- 20- S. Kalem  
Optical investigation of a-Si:H/a-SiNx:H superlattices  
Physical Review B 37, 8837 (1988).



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## 2. Past and present research collaborations

Are you familiar  
with the European  
Framework  
Programme?

Yes

No

- with Framework Programme 5  
 with Framework Programme 6  
 with Framework Programme 7

EU-projects you are  
involved in:  
Past projects

Programme title / contract number / title / acronym / your function  
(coordinator / partner / contractor)

Present projects

CADRES-Coordination Action on defects related to engineering of Silicon based devices/FP6-IST/506962

Other international  
collaborations:

University of Illinois at Urbana-Champaign, Electrical and Computer Engineering,  
Compound Semiconductor Microelectronics

Name(s) and  
contact details of  
potential partners:

**If you would like to suggest the participation of particular partners from the partner country based on existing contacts or collaboration experience, you are welcome to indicate their names and contact details below:**  
Dr.P.Werner, Max-planck-Institute-Halle, MPI of Microstructure Physics

## 3. Presentation at the Workshop

I will give a presentation at the workshop (approx. 10 min.) to present my institution, my expertise, and my collaboration interests. The contents of my presentations is summarised below (max. 1 page).

Growth and investigation of semiconductor nanostructures and related devices  
Proton implantation and smart-cut  
Photovoltaics

**I agree with the publication of my data on the Workshop website!**

**PLEASE FILL IN THIS FORM UNTIL 22 SEPT. 2006 AND RETURN IT TO:**

Internationales Buero des BMBF  
[s.krummacher@fz-juelich.de](mailto:s.krummacher@fz-juelich.de);  
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