

Program

as of September 16, 2009

Saturday (September 26, 2009)

16:00 Registration start

19:00 – 23:00 Get-together party

Sunday (September 27, 2009)

09:00 – 09:20 Opening

Plenary Session

Session chair: H. Grimmeiss

09:20 – 10:10	Electrical and optical properties of dislocations in Si V. Kveder (<i>invited</i>)
10:10 – 11:00	Dislocation nucleation in heteroepitaxial semiconducting films B. Pichaud (<i>invited</i>), N. Burle, M. Texier, C. Fontaine and V. Vdovin
11:00 – 11:20	<i>COFFEE BREAK</i>
11:20 – 12:10	Numerical analysis of mc-Si crystal growth K. Kakimoto (<i>invited</i>), H. Matsuo, S. Hisamatsu, B. Ganesh, G. Bing, X.J. Chen, L. Liu, H. Miyazawa and Y. Kangawa
12:10 – 14:00	<i>LUNCH</i>

Session chair: H. Richter

14:00 – 14:50	Trends in photovoltaics P. Fath (<i>invited</i>)
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Session: Point Defects and Oxygen

14:50 – 15:10	Properties of fast-diffusing oxygen species in silicon deduced from the generation kinetics of thermal donors V.V. Voronkov, G.I. Voronkova, A.V. Batunina, V.N. Golovina, R. Falster, M. Cornara, N.B. Tiurina and A.S. Guljaeva
15:10 – 15:30	Oxygen precipitation in conventional and nitrogen co-doped heavily arsenic-doped Czochralski silicon crystals: Ostwald ripening X. Ma, Y. Feng, Y. Zeng and D. Yang
15:30 – 15:50	The role of the interstitial oxygen in the recovery and evolution of the boron implantation damage I. Mica, M.L. Polignano, F. Cazzaniga, L. Di Piazza, M. Mariani, E. Ricci, F. Sammiceli and S. Speranza
15:50 – 16:20	<i>COFFEE BREAK</i>

Session chair: A. Cavallini

16:20 – 17:00	Review of stress effects on dopant solubility in Si and SiGe layers N.S. Bennett, C. Ahn, N.E.B. Cowern and P. Pichler (<i>invited</i>)
17:00 – 17:20	Rate equation modeling, ab initio calculation, and high sensitive FTIR investigations of the early stages of oxide precipitation in vacancy-rich CZ silicon G. Kissinger, J. Dabrowski, V. Akhmetov, A. Sattler, D. Kot and W. von Ammon
17:20 – 17:40	Low-temperature elastic softening due to vacancies in B-doped FZ Si crystals H. Yamada-Kaneta, H. Watanabe, Y. Nagai, S. Baba, M. Akatsu, Y. Nemoto and T. Goto
17:40 – 18:00	Oxygen diffusion in $\text{Si}_{1-x}\text{Ge}_x$ alloys L.I. Khirunenko, Y.V. Pomozov, M.G. Sosnin, A.V. Duvanskii, S.K. Golyk, N.V. Abrosimov and H. Riemann

18:00 – 19:30 *DINNER*

Poster Session 1

19:30 – open end

Monday (September 28, 2009)

Session: Photovoltaic Silicon and Defects

Session chair: *W. Koch*

08:30 – 09:10	Influence of defects on solar cell characteristics O. Breitenstein (<i>invited</i>), J. Bauer, P. P. Altermatt and K. Ramspeck
09:10 – 09:50	Dislocation engineering in multi-crystalline silicon M. Bertoni (<i>invited</i>), C. Colin and T. Bounassisi
09:50 – 10:10	Analysis of heterogeneous iron precipitation in mc-Si A. Haarahiltunen, V. Vähänissi, M. Yli-Koski, H. Talvitie and H. Savin
10:10 – 10:30	Photovoltaic-quality silicon epitaxy by hot-wire CVD at glass-compatible temperatures C.W. Teplin, I.T. Martin, M. Shub, R.C. Reedy, K.M. Jones, M.J. Romero, P. Stradins and H.M. Branz
10:30 – 10:50	<i>COFFEE BREAK</i>

Session chair: *E. Weber*

10:50 – 11:30	Multi-crystalline Si wafers for solar cells Y. Wan (<i>invited</i>)
11:30 – 12:10	Conduction mechanisms in doped and undoped nc-Si for PV A. Cavallini (<i>invited</i>)
12:10 – 14:00	<i>LUNCH</i>

Session: Hydrogen and Defect Passivation in Si

Session chair: *T. Buonassisi*

14:00 – 14:40	Hydrogenation in crystalline silicon materials for photovoltaic application G. Hahn (<i>invited</i>), M. Käs and B. Herzog
14:40 – 15:00	Hydrogen effects in Si substrates for solar cells A. Ulyashin
15:00 – 15:20	EBIC investigation of the influence of hydrogen passivation on thin-film polycrystalline silicon solar cells obtained by aluminium induced crystallization and epitaxy D. Van Gestel, I. Gordon and J. Poortmans
15:20 – 15:40	Influence of hydrogen on the structural stability of annealed ultrathin Si/Ge amorphous layers C. Frigeri, L. Nasi, M. Serényi, A. Csik, Z. Erdélyi and D. L. Beke

15:40 – 16:10 *COFFEE BREAK*

Session: Defect Engineering and Gettering

Session chair: D. Yang

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| 16:10 – 16:30 | Iron gettering in CZ silicon during the industrial solar cell process
A. Laades, K. Lauer, C. Maier, D. Alber, M. Bähr, J. Nutsch, J. Lossen and A. Lawerenz |
| 16:30 – 16:50 | Trans-RP gettering and out-diffusion of oxygen implanted into highly B-doped silicon
R. Kögler, Ch. Debois, J.W. Gerlach, H. Hutter, A. Mücklich and W. Skorupa |
| 16:50 – 17:10 | Effect of oxygen in low temperature boron and phosphorus diffusion gettering of iron in Czochralski-grown silicon
V. Vähänissi, A. Haarahiltunen, H. Talvitie, M.I. Asghar, M. Yli-Koski and H. Savin |
| 17:10 – 17:30 | Gettering efficiency of Si (110)/(100) directly bonded hybrid crystal orientation substrates
T. Aoki, H. Kariyazaki, K. Sueoka and K. Izunome |
| 17:30 – 17:50 | The production of vacancy-oxygen defects in electron-irradiated Cz-Si initially treated at high temperatures and high pressures
A. Andrianakis, C.A. Londos, A. Misiuk, V.V. Emtsev, G.A. Oganesyan and H. Ohyama |

18:00 – 19:30 *DINNER*

Poster Session 1

19:30 – open end

Tuesday (September 29, 2009)

Session: Si-based Photonics and Defect Luminescence

Session chair: N. Sobolev

08:30 – 09:10	Silicon periodic structures and their liquid crystal composites E.V. Astrova (<i>invited</i>), V.A. Tolmachev, Yu.A. Zharova, G.V. Fedulova, A.V. Baldycheva and T.S. Perova
09:10 – 09:30	Dependence of luminescence properties of bonded Si wafers on surface twist angle E.A. Steinman, O. Kononchuk, A.N. Tereshchenko and A.A. Mazilkin
09:30 – 09:50	D-line emission from small angle grain boundaries in multicrystalline Si T. Sekiguchi, W. Lee, J. Chen and B. Chen
09:50 – 10:10	Determination of the origin of dislocation related luminescence from silicon using regular dislocation networks T. Mchedlidze, O. Kononchuk, T. Arguirov, M. Trushin, M. Reiche and M. Kittler
10:10 – 10:30	<i>COFFEE BREAK</i>

Session chair: V. Kveder

10:30 – 10:50	Structural and luminescent properties of implanted silicon layers with dislocation-related luminescence N.A. Sobolev, Kalyadin, R.N. Kyutt, E.I. Shek and V.I. Vdovin
10:50 – 11:10	Optimization of the luminescence properties of silicon diodes produced by implantation and annealing T. Arguirov, T. Mchedlidze, M. Reiche and M. Kittler
11:20 – 12:20	<i>LUNCH</i>

Excursion to Berlin

12:30	Departure to excursion
19:00	Expected time of arrival from Berlin
19:00 – 20:30	<i>DINNER</i>

Poster Session 2

20:30 – open end

Wednesday (September 30, 2009)

Session: Advanced Semiconductor Materials and Devices

Session chair: V. Litovchenko

09:10 – 09:50	Advanced Si-based semiconductors for energy and photonic applications J. Kouvetsakis (<i>invited</i>), J. Menendez and J. Tolle
09:50 – 10:30	Strained silicon devices M. Reiche (<i>invited</i>), O. Mountanabbir, J. Hoentschel, U. Gösele, S. Flachowsky and M. Horstmann
10:30 – 10:50	<i>COFFE BREAK</i>

Session chair: G. Rozgonyi

10:50 – 11:30	Novel trends in SOI technology for CMOS applications O. Kononchuk (<i>invited</i>), D. Landru and C. Veytizou
11:30 – 11:50	Si wafer bonding: Structural features of the interface V.I. Vdovin, N.D. Zakharov, E. Pippel, P. Werner, M.G. Milvidskii, M. Ries, M. Seacrist and R. Falster
11:50 – 12:10	Semi-insulating silicon for microwave devices D.M. Jordan, K. Mallik, R.J. Falster and P.R. Wilshaw
12:10 – 14:00	<i>LUNCH</i>

Session: Modeling

Session chair: P. Pichler

14:00 – 14:20	Optimization of silicon ingot quality by the numerical prediction of bulk crystal defects F. Loix, F. Dupret, A. de Potter, R. Rolinsky, N. Van den Bogaert and V. Regnier
14:20 – 14:40	Simulation of iron distribution after crystallization of mc-silicon J. Schön, H. Habenicht, M.C. Schubert and W. Warta
14:40 – 15:00	Modeling of dislocations in Ge/Si nanostructures by finite element method R. Gatti, F. Boioli, A. Marzegalli, F. Montalenti and L. Miglio
15:00 – 15:20	Atomistic simulation of recrystallization of amorphous Si, Ge and SiGe M. Posselt and A. Gabriel

15:20 – 15:40	Ab initio study of hydrogenated defects and platelets models in hydrogen implanted Si L. Bilteau, A. Tauzin and J.-P. Crocombette
15:40 – 16:00	Molecular simulation on interfacial structure and gettering efficiency of Si (110)/(100) directly bonded hybrid crystal orientation substrates H. Kariyazaki, T. Aoki, K. Izunome and K. Sueoka
16:00 – 16:30	<i>COFFEE BREAK</i>

Session: Defect and Impurity Characterization I

Session chair: *T. Sekiguchi*

16:30 – 17:10	Synchrotron microscopy and spectroscopy for analysis of solar Si W. Seifert (<i>invited</i>), O. Vyvenko, T. Arguirov, M. Trushin and M. Kittler
17:10 – 17:30	Quantitative iron concentration imaging M.C. Schubert, H. Habenicht, M.J. Kerler and W. Warta
17:30 – 17:50	Divacancy-oxygen and trivacancy-oxygen complexes in silicon: Local vibrational mode studies L.I. Murin, B.G. Svensson , J.L. Lindström, V.P. Markevich and C.A. Londos
18:00 – 19:30	<i>DINNER</i>

Poster Session 2

19:30 – open end

Thursday (October 01, 2009)

Session: Impurity Engineering and Radiation-Induced Defects

Session chair: O. Kononchuk

09:00 – 09:40	Can impurities be beneficial to photovoltaics? A. Luque (<i>invited</i>) and A. Marí
09:40 – 10:20	Impurity engineering of Czochralski silicon J. Chen, X. Ma and D. Yang (<i>invited</i>)
10:20 – 10:40	Role of ion irradiation induced lattice defects on nanoscale capacitive behavior of graphene S. Sonde, F. Giannazzo, V. Raineri, S. Di Franco, A. Marino and E. Rimini
10:40 – 11:00	<i>COFFE BREAK</i>

Session chair: V. Raineri

11:00 – 11:20	Formation of radiation-induced defects in Si crystals irradiated with electrons at elevated temperatures V.P. Markevich, A.R. Peaker, S.B. Lastovskii, V.E. Gusakov, I.F. Medvedeva and L.I. Murin
11:20 – 11:40	Accumulation of hydrogen within implantation-damaged areas in processed Si:N and Si:O A. Misiuk, A. Ulyashin, A. Barcz and P. Formanek
11:40 – 12:00	Anisotropic strain - Anisotropic heating engineering for Si nanocrystals in SiO₂ I.V. Antonova, D.V. Marin, V.A. Volodin, V.A. Skuratov, J. Jedrzejewski and I. Balberg
12:00 – 14:00	<i>LUNCH</i>

Session chair: B. Pichaud

14:00 – 14:20	Co-precipitation of copper and nickel in crystalline Si under copper- and nickel- rich conditions C. Rudolf, P. Saring, L. Stolze and M. Seibt
14:20 – 14:40	Radiation defects in silicon: Effect of contamination by platinum atoms P. Hazdra and V. Komarnitskyy

Session: Defect and Impurity Characterization II

14:40 – 15:20	Grain boundaries in multicrystalline Si J. Chen (<i>invited</i>), B. Chen, W. Lee, M. Fukuzawa, M. Yamada and T. Sekiguchi
15:20 – 15:50	<i>COFFEE BREAK</i>
<i>Session chair: L. Fabry</i>	
15:50 – 16:10	Electronic states of oxygen-free dislocation networks produced by direct bonding of silicon wafers M. Trushin, O. Vyvenko, T. Mchedlidze, O. Kononchuk and M. Kittler
16:10 – 16:30	Correlation study of morphology, electrical activation and contact formation of ion implanted 4H-SiC M.H. Weng, F. Roccaforte, F.Giannazzo, S. Di Franco, C. Bongiorno, E. Zanetti, A. Ruggiero, M. Saggio and V. Raineri
16:30 – 16:50	Characterization of semiconductor films epitaxially grown on thin metal oxide buffer layers P. Zaumseil, A. Giussani, O. Seifarth, T. Arguirov, A. Schubert and T. Schroeder
16:50 – 17:10	Comparative study of electrical and optical properties of plastically deformed Si N. Yarykin and O. Feklisova
19:00 – open end	<i>CONFERENCE DINNER</i>

Friday (October 02, 2009)

Session: Nanostructures and Novel Devices

Session chair: P. Wilshaw

09:00 – 09:40	Current status of graphene transistors M.C. Lemme (<i>invited</i>)
09:40 – 10:00	Theoretical study of ionized impurities in silicon nanowire MOS transistors M. Bescond, M. Lannoo, L. Raymond and F. Michelini
10:00 – 10:20	Optical properties of Si nanowires catalyzed by arrays of gold nanoparticles with controlled diameters G. Brönstrup, D. Leroose, M.G. Jenke, Ch. Niederberger, J. Hankache, M. Bechelany, L. Philippe, I. Utke, J. Michler and S. Christiansen
10:20 – 10:40	COFFEE BREAK

Session chair: A. Luque

10:40 – 11:20	Clean energy: The case for thermoelectrics and photovoltaics A. Boukai (<i>invited</i>)
11:20 – 11:40	Axial heterojunctions in Si nanowires by Pulsed Laser Deposition: Doping and Si/Ge layer stacks B. Eisenhauer, A. Berger, D. Zhang, J. Michler and S. Christiansen
11:40 – 11:50	Closing Remarks
12:00 – 13:00	LUNCH
13:00	Bus departure to Berlin

POSTER SESSION 1 (Sunday and Monday)

Photovoltaic Silicon

- P1 Growth of silicon carbide filaments in multicrystalline silicon for solar cells**
H.J. Möller, C. Funke, J. Bauer, S. Köstner, H. Straube and O. Breitenstein
- P2 Analysis of silicon carbide and silicon nitride precipitates in block cast multicrystalline silicon**
M. Holla, T. Arguirov, W. Seifert and M. Kittler
- P3 Investigations on the behaviour of carbon during inductive melting of multicrystalline silicon**
L. Raabe, J. Ehrig, S. Würzner, O. Pätzold, M. Stelter and H.J. Möller
- P4 An investigation into fracture of multi-crystalline silicon**
B.R. Mansfield, D.E.J. Armstrong, P.R. Wilshaw and J.D. Murphy
- P5 Hydrogen-induced passivation of grain-boundary defects in polycrystalline silicon**
N.H. Nickel
- P6 Bulk passivation of defects in multi-crystalline silicon solar cells by a-SiN_x:H layers**
E. Cornagliotti, H.F.W. Dekkers, C. Prastani, J. John, E. Van Kerschaver, J. Poortmans and R.P. Mertens
- P7 Passivation of Si surfaces investigated by in-situ photoluminescence techniques**
J. Rappich, X. Zhang, D.M. Rosu, U. Schade and K. Hinrichs
- P8 Study of internal versus external gettering of iron during slow cooling processes for silicon solar cell fabrication**
J. Hofstetter, J.-F. Lelièvre, C. del Cañizo and A. Luque
- P9 Characterization of thin film photovoltaic material using photoluminescence and Raman spectroscopy**
T. Mcchedlidze, T. Arguirov, S. Kouteva-Argirova and M. Kittler
- P10 Epitaxial film silicon solar cells by hot wire chemical vapor deposition below 750 °C**
K. Alberi, I.T. Martin, C.W. Teplin, E. Iwaniczko, Y. Xu, A. Duda, P. Stradins, S.W. Johnston, H.R. Moutinho, H.M. Branz and D.L. Young
- P11 3rd generation solar cell prototype based on chemically formed silicon nanowires: Processing, optical and photovoltaic properties**
V.A. Sivakov, G. Brönstrup, A. Gawlik, A. Berger and S.H. Christiansen
- P12 SEM characterization of silicon layers grown on carbon foil**
S.K. Brantov, A.V. Eltzov, O.V. Feklisova and E.B. Yakimov
- P13 An express method for the study of planar homogeneity of diffusion length in multicrystalline solar silicon**

V. Litovchenko, A. Sarikov and A. Evtukh

Defect Aspects and Gettering

- P14 Anomalous out-diffusion profiles of nitrogen in silicon**
V.V. Voronkov, R. Falster and S. Senkader
- P15 Growth of heavily phosphorus-doped (111) silicon crystals**
F. Liu, H.P. Han, Y.M. Wang and L.Y. Tong
- P16 Study of the mechanisms of oxygen precipitation in RTA annealed Cz-Si wafers**
V. Litovchenko, I. Lisovskyy, M. Voitovych, A. Sarikov, S. Zlobin, V. Kladko and V. Machulin
- P17 Dislocation states and deformation-induced point defects in plastically deformed germanium**
S. Shevchenko and A. Tereshchenko
- P18 Defect generation during plastic deformation of Si-rich Cz-grown SiGe crystals**
N. Yarykin and N.V. Abrosimov
- P19 Boron and phosphorus implantation induced electrically active defects in p-type silicon**
J. Senawiratne, J.S. Cites, J.G. Couillard, J. Moll, C.A. Kosik Williams and P.G. Whiting
- P20 Suppression of pores formation on a surface of p-Si by laser radiation**
A. Medvid, P. Onufrijevs, L. Fedorenko, N. Yusupov and E. Daukšta
- P21 Far-action defects formation and gettering in 6H-SiC Lely crystals irradiated by Bi**
D.B. Shustov, E.V. Kolesnikova, E.V. Kalinina, V.A. Skuratov and M.V. Zamoryanskaya
- P22 Evaluation criteria for efficient gettering applied for Cu and Ni impurities in Si wafers**
D. Kot, G. Kissinger, M. A. Schubert, A. Sattler and W. von Ammon
- P23 Aluminum gettering of iron in silicon**
D. Abdelbarey, V. V. Kveder, W. Schröter and M. Seibt
- P24 Spatially resolved defect analysis in Cz-silicon after copper-nickel co-precipitation by virtue of light-beam-induced current measurements**
P. Saring, C. Rudolf, L. Stolze, A. Falkenberg and M. Seibt

POSTER SESSION 2 (Tuesday and Wednesday)

Defect Aspects, Characterization and Modeling

- P25 Delineation of microdefects in silicon substrates by chromium-free preferential etching solutions and laser scattering tomography**
M. Pellowska, D. Possner, D. Kot, G. Kissinger and B.O. Kolbesen
- P26 Vacancies and self-interstitials dynamics in silicon wafers**
O. Caha, J. Kubena, A. Kubena and M. Meduna
- P27 Interaction of point defects with impurities in the Si-SiO₂ system and its influence on the properties of the interface**
D. Kropman, E. Mellikov, K. Lott, T. Kärner, I. Heinmaa, T. Laas, A. Medvid, W. Skorupa, S. Prucnal, S. Zvyagin, E. Cizmar, M. Ozerov and J. Woznitsa
- P28 DLTS studies of carbon related complexes in irradiated n- and p-silicon**
L.F. Makarenko, F.P. Korshunov, S.B. Lastovski, L.I. Murin and M. Moll
- P29 The effect of germanium doping on the production of carbon-related defects in electron-irradiated Czochralski silicon**
C.A. Londos, A. Andrianakis, D. Aliprantis, E. Sgourou, V.V. Emtsev and H. Ohyama
- P30 Formation of radiation hardened SOI structures by N⁺ implantation in SiO₂ film and subsequent hydrogen transfer of Si layer**
I.E. Tyschenko and V.P. Popov
presented by I.V. Antonova
- P31 Onset of blistering in low-dose hydrogen implanted and then hydrogen plasma treated Si: Formation of porous-like structures and layer exfoliation processes**
A. Ulyashin, H. Nordmark, A. Misiuk, J. C. Walmsley and R. Holmestad
- P32 Thermal optimization of Cz silicon single crystal growth**
A.I. Prostomolotov, N.A. Verezub and M.G. Milvidskii
- P33 Comparison of efficiency and kinetics of phosphorus-diffusion and aluminum gettering of metal impurities in silicon: A simulation study**
M.A. Falkenberg, D. Abdelbarey, V.V. Kveder and M. Seibt
- P 34 Atomistic simulations of point defect diffusion in Si and SiGe: A powerful tool for point defect engineering**
P. Pochet, D. Caliste, K. Rushchanskii, F. Lancon and T. Deutsch
- P35 Effect of growth conditions and catalyst material on nanowhisker morphology: Monte Carlo simulation**
A.G. Nastovjak, I.G. Neizvestny and N.L. Shwartz
presented by I.V. Antonova
- P36 Versatile simulation tool and novel measurement method for electrical characterization of semiconductors**
N. Schüler, T. Hahn, K. Dornich and J.R. Niklas
- P37 Simulation of XBIC contrast of precipitates in Si**
E.B. Yakimov

- P38 Oxygen trimer in silicon: an infrared absorption study**
L.I. Murin, V.P. Markevich, B.G. Svensson and J.L. Lindström
- P39 In-situ observation of oxygen precipitation in silicon with high energy X-rays**
H. Grillenberger and A. Magerl
- P40 Electron-beam-induced current study of breakdown behavior of high-k gate MOSFETs**
J. Chen, T. Sekiguchi, M. Takase, N. Fukata, R. Hasunuma, K. Yamabe, M. Sato, K. Yamada and T. Chikyo
- P41 Investigation of the mechanical properties of thin films by bulge test**
A. Hémel, T. Schenk, A. Jacques and T. Kruml
- P42 Defect characterization of poly-Ge and VGF-grown Ge material**
M. Holla, T. Arguirov, G. Jia, M. Kittler, Ch. Frank-Rotsch, F. Kiessling and P. Rudolph

Nanostructures

- P43 Scaling in quantum transport in silicon nano-transistors**
U. Wulf and H. Richter
- P44 Silicon cluster aggregation in silica layers**
H.-J. Fitting, L. Fitting-Kourkoutis, R. Salh, E.V. Kolesnikova, M.V. Zamoryanskaya and B. Schmidt
- P45 Feedback effect on the self-organized nanostructures formation on silicon upon femtosecond laser ablation**
O. Varlamova, M. Ratzke and J. Reif
- P46 Confinement levels in passivated SiGe/Si quantum well structures**
I.V. Antonova, E.P. Neustroev, S.A. Smagulova, M.S. Kagan, P.S. Alekseev, S.K. Ray, N. Sustersic and J. Kolodzey
- P47 Structural transformations in Si nanostructures induced by swift heavy ions**
G.A. Kachurin, S.G. Cherkova, D.V. Marin, A.G. Cherkov and V.A. Skuratov presented by I.V. Antonova
- P48 Impurity doping of Si nanowires synthesized by laser**
N. Fukata, M. Seoka, N. Saito, K. Sato, J. Chen, T. Sekiguchi and K. Murakami