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Effects of the surface structure and cluster bombardment on the self-sputtering of molybdenum

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Upper size limit of complete contact epitaxy

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Nord, J., Nordlund, K. & Keinonen, J., 2002, In: Physical Review B, Condensed Matter and Materials Physics. 65, p. - 14 p.

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Krasheninnikov, A. V., Nordlund, K. & Keinonen, J., 2002, In: Applied Physics Letters. 81, p. 1101-1103 3 p.

Effects of damage build-up in range profiles in crystalline Si; Molecular dynamics simulations

Peltola, J., Nordlund, K. & Keinonen, J., 2002, In: Nuclear Instruments & Methods in Physics Research. Section B: Beam Interactions with Materials and Atoms. 195, 3-4, p. 269-280 12 p.

Effects of ion irradiation on supported carbon nanotubes and nanotube-substrate interfaces

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Ion-irradiation-induced welding of carbon nanotubes

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Production of defects in supported carbon nanotubes under ion irradiation

Krasheninnikov, A. V., Nordlund, K. & Keinonen, J., 2002, In: Physical Review B, Condensed Matter and Materials Physics. 65, p. 165423 8 p.

Reduced chemical sputtering of carbon by silicon doping

Salonen, E., Nordlund, K., Keinonen, J., Runeberg, N. & Wu, C. H., 2002, In: Journal of Applied Physics. 92, p. 2216-2218 3 p.

Signatures of irradiation-induced defects in scanning-tunneling microscopy images of carbon nanotubes

Krasheninnikov, A. & Nordlund, K., 2002, In: Physics of the Solid State. 44, p. 470

Sputtering of amorphous hydrogenated carbon by hyperthermal ions as studied by tight-binding molecular dynamics

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Tight-binding atomistic simulations of hydrocarbon sputtering by hyperthermal ions in tokamak divertors

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Cratering-energy regimes: From linear collision cascades to heat spikes to macroscopic impacts

Bringa, E. M., Nordlund, K. & Keinonen, J., 2001, In: Physical Review B, Condensed Matter and Materials Physics. 64, p. 12 p.

Defect clustering during ion irradiation of GaAs: Insight from molecular dynamics simulations

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Sillanpää, I. J., Peltola, J., Nordlund, K., Keinonen, J. & Puska, M. J., 2001, In: Physical Review B, Condensed Matter and Materials Physics. 63, p. 5 p.

Formation of ion-irradiation-induced atomic-scale defects on walls of carbon nanotubes

Krasheninnikov, A. V., Nordlund, K., Sirvio, M., Salonen, E. & Keinonen, J., 2001, In: Physical Review B, Condensed Matter and Materials Physics. 63, p. 245405 6 p.

Mechanism of electron-irradiation-induced recrystallization in Si

Frantz, C. J. S., Tarus, J. P., Nordlund, K. & Keinonen, J., 2001, In: Physical Review B, Condensed Matter and Materials Physics. 64, p. 5 p.

Melting temperature effects on the size of ion-induced craters

Nordlund, K., Henriksson, K. O. E. & Keinonen, J., 2001, In: Applied Physics Letters. 79, p. 3624-3626 3 p.

Swift chemical sputtering of amorphous hydrogenated carbon

Salonen, E., Nordlund, K., Keinonen, J. & Wu, C. H., 2001, In: Physical Review B, Condensed Matter and Materials Physics. 63, p. - 14 p.

Electronic stopping of Si from a three-dimensional charge distribution

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Bond-breaking mechanism of sputtering

Salonen, E., Nordlund, K., Keinonen, J. & Wu, C. H., 2000, In: Europhysics Letters. 52, p. 504-510 7 p.

Electronic stopping of silicon from a 3D charge distribution

Sillanpaa, J., Nordlund, K. & Keinonen, J., 2000, In: Physical Review B, Condensed Matter and Materials Physics. 62

Strain-induced Kirkendall mixing at semiconductor interfaces

Nordlund, K., Nord, J., Frantz, J. & Keinonen, J., 2000, In: Computational Materials Science. 18, p. 283-294 12 p.

Coherent displacement of atoms during ion irradiation

Nordlund, K., Keinonen, J., Ghaly, M. & Averback, R. S., 1999, In: Nature. 398, p. 49-51 3 p.

Suppression of carbon erosion by hydrogen shielding during high-flux hydrogen bombardment

Salonen, E., Nordlund, K., Tarus, J., Ahlgren, T., Keinonen, J. & Wu, C. H., 1999, In: Physical Review B, Condensed Matter and Materials Physics. 60, p. 14005-14008 4 p.

Effect of surface on defect creation by self-ion bombardment of Si(001)

Tarus, J., Nordlund, K., Kuronen, A. & Keinonen, J., 1998, In: Physical Review B, Condensed Matter and Materials Physics. 58, p. 9907-9915 9 p.

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Nordlund, K., Runeberg, N. & Sundholm, D., Oct 1997, In: Nuclear Instruments & Methods in Physics Research. Section B: Beam Interactions with Materials and Atoms. 132, 1, p. 45-54 10 p.

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Jokinen, J., Keinonen, J., Tikkanen, P., Kuronen, A., Ahlgren, T. & Nordlund, K., 1996, In: Nuclear Instruments & Methods in Physics Research. Section B: Beam Interactions with Materials and Atoms. 119, 4, p. 533-542 10 p.

Formation of ion irradiation induced small-scale defects on graphite surfaces

Nordlund, K., Keinonen, J. & Mattila, T., 1996, In: Physical Review Letters. 77, p. 699-702 4 p.

Stopping of 5-100 keV helium in tantalum, niobium, tungsten, and AISI 316L steel

Haussalo, P., Nordlund, K. & Keinonen, J., 1996, In: Nuclear Instruments & Methods in Physics Research. Section B: Beam Interactions with Materials and Atoms. 111, p. 1-6 6 p.

Range profiles in self-ion-implanted crystalline Si

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1ST-PRINCIPLES SIMULATION OF COLLISION CASCADES IN SI TO TEST PAIR-POTENTIALS FOR SI-SI INTERACTION AT 10 EV-5 KEV

KEINONEN, J., KURONEN, A., NORDLUND, K., NIEMINEN, R. M. & SEITSONEN, A. P., 1994, In: Nuclear Instruments & Methods in Physics Research. Section B: Beam Interactions with Materials and Atoms. 88, p. 382-386 5 p.

A LOW-LEVEL DETECTION SYSTEM FOR HYDROGEN ANALYSIS WITH THE REACTION $1\text{H}(15\text{N},\alpha\text{-GAMMA})12\text{C}$

TORRI, P., KEINONEN, J. & NORDLUND, K., 1994, In: Nuclear Instruments & Methods in Physics Research. Section B: Beam Interactions with Materials and Atoms. 84, p. 105-110 6 p.

LIFETIMES IN N-15 FROM GAMMA-RAY LINE-SHAPES PRODUCED IN THE $\text{H-2}(\text{N-14},\text{P-GAMMA})$ AND $\text{N-14}(\text{THERMAL N,GAMMA})$ REACTIONS

RAMAN, S., JURNEY, E. T., STARNER, J. W., KURONEN, A., KEINONEN, J., NORDLUND, K. & MILLENER, D. J., 1994, In: Physical Review C (Nuclear Physics). 50, p. 682-697 16 p.

Projects

Materials- and Nanophysics Researcher Community (MATENA)

Ahlgren, T., Aitola, K., Arstila, K., Avchachov, K., Björkas, C., Chrobak, D., Costelle, L., Djurabekova, F., Fernandez Martinez, M., Galambosi, S., Hakala, M., Harjunmaa, A. N., Heinola, K., Hirvelä, J. H., Holmström, E. K., Huotari, S., Hämäläinen, K., Ikonen, T., Jalkanen, P., Jansson, V., Juurinen, I., Keinonen, J., Keyriläinen, J., Kisko, K., Koskelo, O., Krashenninnikov, A., Kuronen, A., Lasa Esquisabel, A., Laukkanen, J. K., Lehtinen, O. J., Lehtola, S., Svedström, K. J., Mattila, A., Meinander, N. K., Mizohata, K., Nordlund, K., Nygård, K., Pakarinen, O. H., Palonen, V., Parviainen, S., Peura, M., Pirkkalainen, K., Pirojenko, A., Pohjonen, A., Polvi, J., Porra, L., Pusa, P., Pykkänen, T., Rauhala, E., Ruotsalainen, K., Ruzibaev, A., Räsänen, J., Sajavaara, T. P., Sakko, A., Serimaa, R., Soinin, A., Suhonen, H., Timko, H., Tolvanen, A., Torkkeli, M., Tuboltsev, V., Ullah, M., Väyrynen, S. & Vörtler, K.
22/02/2011 → ...

Nanohiukkasten optiset ja pintaominaisuudet

Kulmala, M., Nordlund, K., Keinonen, J., Sundholm, D. & Räsänen, M.
Suomen Akatemia
01/01/2007 → 31/12/2010

MachQu: Probabilistic Machine Learning for Quantum Mechanics-Based Material Design

Roos, T., Djurabekova, F. & Nordlund, K.
01/01/2018 → 31/12/2019

Activities

TAITASMARTGIS

Petri Pellikka (Speaker: Chair), Tom Böhling (Speaker: Keynote), Kaarle Hämeri (Speaker: Keynote), Mika Siljander (Speaker: Chair), Laura Alakukku (Attendee), Juuso Tuure (Speaker: Presenter), Pirjo Mäkelä (Attendee), Matti Räsänen (Speaker: Presenter), James Mwangombe Mwamodenyi (Speaker: Presenter), Sheila Aswani Wachiye (Speaker: Presenter), Hari Adhikari (Speaker: Presenter), Edward Amara (Attendee), Janne Heiskanen (Attendee), Temesgen Abera (Speaker: Presenter), Eduardo Maeda (Attendee), Simon Schallhart (Attendee), Werner Kutsch (Speaker: Presenter), Antti Autio (Attendee), Kristiina Karhu (Speaker: Presenter), Kevin Mganga (Attendee), Risto Vesala (Attendee), Laura Arppe (Attendee), Hanna Rosti (Speaker: Presenter), Enrico Di Minin (Attendee) & Kai Nordlund (Speaker: Presenter)
1 Oct 2019

Insights on sputtering and deposition mechanisms from molecular dynamics simulations

Kai Nordlund (Speaker)
7 Dec 2018

Possibility of materials modification by dark matter particle irradiation

Kai Nordlund (Speaker)
27 Nov 2018

Improving on analytical radiation damage calculations: arc-dpa and rpa

Kai Nordlund (Speaker)

16 Oct 2018

Fundamental mechanisms of accelerated and plasma ion interactions with materials: insights from atomistic simulations

Kai Nordlund (Speaker)

21 Jun 2018

Channeling effects in nanostructures: analysis and comparisons with experiments

Kai Nordlund (Speaker)

13 Apr 2018

Nuclear stopping power of antiprotons

Kai Nordlund (Speaker)

14 Mar 2018

Molecular dynamics simulations of collision cascades: method developments and results from 1993 on

Kai Nordlund (Speaker)

7 Dec 2017

High-dose damage evolution in Fe, FeCr, and high-entropy alloys

Kai Nordlund (Speaker)

15 Nov 2017

Improving atomic displacement calculations with physically realistic damage models: arc-dpa and rpa

Kai Nordlund (Speaker)

25 Oct 2017

Systematic analysis of ion channeling over all crystal directions: dependences on energy, crystal structure, atom size, temperature, and defect concentration

Kai Nordlund (Speaker)

24 Oct 2017

Insights to physics of sputtering and channeling effects learnt from molecular dynamic simulations

Kai Nordlund (Speaker)

21 Aug 2017

Current topics of modelling in materials science (in Helsinki)

Kai Nordlund (Speaker) & Flyura Gatifovna Djurabekova (Speaker)

3 Aug 2017

20th INTERNATIONAL CONFERENCE ON SURFACE MODIFICATION OF MATERIALS BY ION BEAMS

Kai Nordlund (Attendee)

11 Jul 2017

Nanoscale pattern formation at surfaces and Formation of 3D nanostructures

Flyura Djurabekova (Chair), Kai Henrik Nordlund (Chair), Christoffer John Patrik Fridlund (Member of organizing committee), Andrew Ilinov (Secretary of organizing committee), Alvaro Lopez Cazalilla (Member of organizing committee) & Antti Armas Kuronen (Scientific Committee Vice Chair)

26 Jun 2017 → 30 Jun 2017

Tutorial: atomistic simulations for irradiation effects.

Kai Nordlund (Speaker)

15 Nov 2016

International conference on metallurgical coatings and thin films (ICMCTF)

Kai Nordlund (Speaker: Keynote)
2016

MRS fall meeting, symposium Ion Beam Enabled Nanoscale Fabrication and Materials Synthesis

Kai Nordlund (Speaker: Keynote)
2016

Summer school on plasma-surface interactions

Kai Nordlund (Speaker: Presenter)
2016

Workshop on nanocluster deposition

Kai Nordlund (Speaker: Keynote)
2016

Fysiikan päivät 2015

Kai Nordlund (Speaker: Keynote)
17 Mar 2015

CECAM workshop on Modeling metal-based nanoparticles: toward realistic environments

Kai Nordlund (Speaker: Keynote)
2015

International Symposium on Multi-scale Modeling and Simulation of Materials

Kai Nordlund (Speaker: Keynote)
2015

MRS Fall Meeting, symposium Defect and Radiation Effects in Advanced Materials

Kai Nordlund (Speaker: Keynote)
2015

MRS Spring Meeting, symposium Multiscale modeling of microstructural evolution in nuclear materials

Kai Nordlund (Speaker: Keynote)
2015

Radiation Effects in Insulators School, Invited tutorial talk

Kai Nordlund (Speaker: Keynote)
2015

Towards Reality in Nanoscale Materials

Kai Nordlund (Chair)
2015

Director of MATRENA doctoral programme

Kai Nordlund (Director)
1 Jan 2014 → ...

18th International Conference on Surface Modification of Materials by Ion Beams

Kai Nordlund (Speaker: Keynote)
2014

2014 Nuclear materials Conference

Kai Nordlund (Speaker: Keynote)
2014

22nd International Conference on Ion-Surface Interactions

Kai Nordlund (Speaker: Keynote)
2014

EMRS Spring meeting, Symposium Defect-induced effects in nanomaterials

Kai Nordlund (Speaker: Keynote)
2014

EUROFusion (External organisation)

Kai Nordlund (Member)
2014 → ...

European Grid Infrastructure Community Forum

Kai Nordlund (Chair)
2014

International Atomic Energy Agency (External organisation)

Kai Nordlund (Expert member)
2014 → 2017

Towards Reality in Nanoscale Materials

Kai Nordlund (Chair)
2014

Radiation Effects in Insulators

Kai Nordlund (Chair)
30 Jun 2013 → 5 Jul 2013

8th symposium of the International Society for Theoretical Chemical Physics

Kai Nordlund (Speaker: Keynote)
2013

EMRS Spring meeting, Symposium Ion Beam Applications: New and Innovative Approaches

Kai Nordlund (Speaker: Keynote)
2013

IUMRS-ICAM Modeling & Simulation Session

Kai Nordlund (Chair)
2013

International Atomic Energy Agency (External organisation)

Kai Nordlund (Expert member)
2013 → 2017

Towards Reality in Nanoscale Materials

Kai Nordlund (Chair)
2013

3rd EU-Russia Innovation Forum

Kai Nordlund (Speaker: Keynote)
2012

All-Russian Conference in Physical and physico-chemical bases of ion implantation

Kai Nordlund (Speaker: Keynote)
2012

Harriet Åhlgren, PhD thesis co-supervision

Kai Nordlund (Co-supervisor)
2012 → 2015

International supercomputing conference

Kai Nordlund (Speaker: Keynote)
2012

Joint ICTP-IAEA workshop on Fusion Plasma Modelling

Kai Nordlund (Speaker: Keynote)
2012

Recent developments in the study of radiation effects in matter (REM) invitation-only meeting

Kai Nordlund (Speaker: Presenter)
2012

Towards Reality in Nanoscale Materials

Kai Nordlund (Chair)
2012

international committee for conference series Ion Beam Modification of Materials (IBMM) (External organisation)

Kai Nordlund (Board member)
2012 → ...

International Committee for Radiation Effects in Insulators (REI) conference (External organisation)

Kai Nordlund (Board member)
2011 → 2015

20th International Conference on Ion-Surface Interactions

Kai Nordlund (Attendee)
2011

Aleksi A Leino, PhD thesis co-supervision

Kai Nordlund (Co-supervisor)
2011 → 2015

Andrea Sand, PhD thesis supervision

Kai Nordlund (Supervisor)
2011 → 2015

Andrey Ilinov, PhD thesis co-supervision

Kai Nordlund (Co-supervisor)
2011 → 2015

Breakdown Physics Workshop (MeVArc)

Kai Nordlund (Chair)
2011

EMRS/IUMRS/ICAM Spring meeting 2011 symposium 'Ion and cluster ion beams for the synthesis and controlled modification of nanomaterials'

Kai Nordlund (Chair)
2011

Fall MRS 2011 meeting, symposium Self-organization and nanoscale pattern formation

Kai Nordlund (Speaker: Keynote)
2011

Konstantin Avchachiov, PhD thesis supervision

Kai Nordlund (Co-supervisor)
2011 → 2015

OECD Nuclear Energy Agency (External organisation)

Kai Nordlund (Chair)
2011 → 2015

PRACE Summer School for advanced programming of Tier-0 supercomputers

Kai Nordlund (Speaker: Keynote)
2011

Spring MRS meeting, symposium Ion Beams – New Applications from the Mesoscale to Nanoscale

Kai Nordlund (Speaker: Keynote)
2011

Towards Reality in Nanoscale Materials

Kai Nordlund (Chair)
2011

18th International Workshop on Inelastic Ion-Surface Collisions

Kai Nordlund (Speaker: Keynote)
2010

24th International Conference on Atomic Collisions in Solids

Kai Nordlund (Speaker: Keynote)
2010

CECAM workshop on radiation damage and non-adiabatic simulations

Kai Nordlund (Speaker: Keynote)
2010

CIMTEC 2010 - 12th International Ceramics Congress & 5th Forum on New Materials

Kai Nordlund (Speaker: Keynote)
2010

Mohammad Wali Ullah, PhD thesis supervision

Kai Nordlund (Co-supervisor)
2010 → 2014

OECD Nuclear Energy Agency (External organisation)

Kai Nordlund (Chair)
2010 → 2014

SPIE Photonics West Meeting on Synthesis and Photonics of Nanoscale Materials VII (SPnsM-VII)

Kai Nordlund (Speaker: Keynote)

2010

Spring MRS meeting, symposium Materials for Nuclear Applications and Extreme Environments

Kai Nordlund (Speaker: Keynote)

2010

Towards Reality in Nanoscale Materials

Kai Nordlund (Chair)

2010

Aarne Pohjonen, PhD thesis co-supervision

Kai Nordlund (Co-supervisor)

2009 → 2013

Ane Lasa, PhD thesis supervision

Kai Nordlund (Supervisor)

2009 → 2013

Eero Holmström, PhD thesis supervision

Kai Nordlund (Supervisor)

2009 → 2012

Helga Timko, PhD thesis supervision

Kai Nordlund (Co-supervisor)

2009 → 2011

Nanostructures in silica

Kai Nordlund (Chair)

2009

Ville Jansson, PhD thesis co-supervision

Kai Nordlund (Co-supervisor)

2009 → 2013

Ville Jansson, PhD thesis supervision

Kai Nordlund (Co-supervisor)

2009 → 2013

Katharina Vörtler, PhD thesis supervision

Kai Nordlund (Supervisor)

2008 → 2011

Marie Backman, PhD thesis supervision

Kai Nordlund (Co-supervisor)

2008 → 2012

Antti Tolvanen, Co-Supervision of PhD thesis

Kai Nordlund (Supervisor)

2007 → 2010

Jussi Polvi, PhD thesis supervision

Kai Nordlund (Supervisor)

2007 → 2013

Ari Harjunmaa, Supervision of PhD thesis

Kai Nordlund (Supervisor)
2006 → 2011

Carolina Björkas, Supervision of PhD thesis

Kai Nordlund (Supervisor)
2006 → 2009

Niklas Juslin, Supervision of PhD thesis

Kai Nordlund (Supervisor)
2006 → 2009

Tommi Järvi, Supervision of PhD thesis

Kai Nordlund (Supervisor)
2006 → 2009

Invited talks at international conferences 2005 - 2010

Kai Nordlund (Speaker: Presenter)
1 Jan 2005 → 31 Dec 2010

Co-supervision of PhD thesis

Kai Nordlund (Supervisor)
2005 → 2007

Juha Samela, Supervision of PhD thesis

Kai Nordlund (Supervisor)
2005 → 2008

Supervision of PhD thesis

Kai Nordlund (Supervisor)
2004 → 2009

Supervision of PhD thesis

Kai Nordlund (Supervisor)
2002 → 2006

Krister Henriksson, Supervision of PhD thesis

Kai Nordlund (Supervisor)
2001 → 2005

International Committee for the Computer simulation of radiation effects in solids (COSIRES) conference (External organisation)

Kai Nordlund (Board member)
2000 → ...

Supervision of PhD thesis

Kai Nordlund (Supervisor)
2000 → 2003

Supervision of PhD thesis

Kai Nordlund (Supervisor)
2000 → 2003

Supervision of PhD thesis

Kai Nordlund (Supervisor)
2000 → 2004

Supervision of PhD thesis

Kai Nordlund (Supervisor)
1999 → 2002

Supervision of PhD student

Kai Nordlund (Supervisor)
1997 → 2000

Supervision of PhD thesis

Kai Nordlund (Supervisor)
1997 → 2000

Yunzheng Zhong, Co-supervision of PhD thesis

Kai Nordlund (Co-supervisor)
1997 → 1999