




Abdelkader Kara

 Department of Physics, University of Central Florida, Orlando, FL 32816
 abdelkader.kara@ucf.edu
 www.physics.ucf.edu/~kkara

EDUCATION

University of Lille and CEA Saclay, France: Doctor of Philosophy 1985, in physics, specialty in Condensed Matter from the Technical, with Highest Honors.

Institut Superieur d'Electronique du Nord, Lille, France: Engineering Diploma 1982, specialty in Physics.

University of Lille: Diplome d' Etudes Approfondies 1982, with Highest Honors.

PROFESSIONAL EXPERIENCE

University of Central Florida: Professor, 2017-Present

University of Central Florida: Associate Professor, 2007-2017

University of Central Florida: Research Associate Professor, 2006-2007

Kansas State University: Research Associate Professor, 2005-2006

Kansas State University: Assistant Research Professor, 1998-2005

Kansas State University, KS: Research Associate, 1994-1998

University of Louisville, KY: Research Associate, 1992-1994

Surface Science Center, IRC Liverpool, England: Research Associate, 1989-1992

Iowa State University: Research Associate, 1986-1989

Pennsylvania State University: Post-Doctoral, 1985-1986

CEA Saclay, Paris, France: Research Assistant, 1981-1985

TEACHING AND MENTORING EXPERIENCE

University of Central Florida: 2006-Present

Classes taught:

- College Physics I and II (in traditional mode).

- College Physics I and II (**in Studio mode since Spring 2010**): I have developed the class material (lectures, clicker questions, quizzes and labs) for this course that is now used by other instructors.
- Electricity and Magnetism.

- **Supervising or co-supervising students (References for the published papers start on page7):**

PhD student who graduated: Jeronimo Matos (PhD), Fall 2015. He published 5 papers in top journals under my supervision (ref. 116, 119 and 120). He is now a High School Science teacher.

Actual PhD Graduate students: Walter Malone (joined my group Summer 2015). Has already three papers published, one submitted and two more in preparation. **Muhammed Sajid and Musaiba Zaman**

Past Graduate students: J. Westover (Working as a Python Developer). Published 2 papers under my supervision.

T. Rojas (moved to another University). Published 1 paper under my supervision.

H. Yildirim, (Ph.D. 2010, now at Air Force). Published 20 papers and 1 chapter book under my supervision or co-Supervision with Prof. T.S. Rahman.

I. Shah (PhD. Previously with Rahman's group). Published 4 papers under my co-supervision.

K. Sbiaai (U. of El-jadida, Morocco). Published 6 papers under my co-supervision.

Undergraduate students: J. Matos (now graduated with PhD); J. Borrelli, S. Roberts R. Alfonso; C. Calvo; T. Zaffino and J. Von der Heyde. **Most of these undergraduate students presented their work at the UCF showcase.**

Co-Founder of the iPURE: Interdisciplinary Physics Undergraduate Research Explorers. A group of 8 undergraduate students from different departments performing experimental and computational research.

Mentoring of supported Post-Docs: Handan Yildirim, Gridhar Nandipati and Karima Lasri.

Awards related to Education: TUES, Active Learning Strategies for Algebra-based Introductory Physics Courses, \$199,972, Co-PI. 2013-2017.

Kansas State University: 1994-2006

- **Contributed in supervising 8 Ph.D. Students** in collaboration with Prof. Rahman: Pavlin Staikov, Ph.D., 1998; Durukanoglu, Ph.D., 1999; Ahlam Al-Rawi, Ph.D., 2000; Weibin Fei, Ph.D., 2000; Chandana Ghosh, Ph.D., 2003; Sampyo Hong, Ph.D., 2005; Altaf Karim, Ph.D. 2006; Faisal Mehmood, Ph.D. 2006. **Over 30 published papers resulted from this collaboration.**
- **Taught for several semesters' recitation classes for engineering physics.**

University of Louisville, KY: 1992-1994

Taught for three semesters recitations for engineering physics classes.

Surface Science Center, IRC Liverpool, England: 1989-1992
Contributed in supervising the Ph.D. research work of R. J. Smith.

● VISITING SCIENTIST POSITIONS

Universite Paris-Sud, France : June-July 2014-2017
University of Cergy Pontoise, France : June 2008-2011
University of Zurich, Switzerland : Summer 2001-2015
CRMCN-CNRS Marseille, France : June 2006
Bogazeci University, Istanbul, Turkey: July 2006
METU, Ankara, Turkey: June 2005
CRMCN-CNRS Marseille, France : July 2005
The Russian Academy of Science, Russia: September 2004
CRMCN-CNRS Marseille, France : June 2004
ITU, Istanbul, Turkey: October-November 2003
Helsinki University of Technology: December 2000
Argonne National Laboratory: June-December 1995

● OTHER EXPERIENCE

Member of the American Physical Society (APS) since 1985

Organization of Conferences and Workshops:

- Co-chair of the Third Euro-Med Conference on Materials and Renewable Energies, Marrakech, Morocco, May 2017.
- Co-chair of the Sixth International Meeting on Silicene, SOLEIL, France, December 2017.
- Co-chair of the Fifth International Meeting on Silicene, UCF, Orlando, USA, December 2015.
- Co-chair of the Third Euro-Med Conference on Materials and Renewable Energies, Marrakech, Morocco November 2015.
- Founder of the Bou-Regreg Summer School, Rabat, Morocco, July 2015.
- Co-chair of the Workshop on 2D materials, UCF, Orlando, 2015
- Co-chair of the Fourth International Meeting on Silicene, Beijing, China June 2014.
- Chair of the Third International Meeting on Silicene, Istres, France 06/13 2013.
- Co-Chair of the Second International Meeting on Silicene, Marrakech, Morocco 11/23 2011.
- Co-Chair of the First Euro-Med Conference on Materials and Renewable Energies, Marrakech, Morocco 11/21-11/25 2011.
- Chair (and PI) of the 1st US-Morocco Workshop on Nano-Materials and Renewable Energies: Ifrane, Morocco 17/11/11-19/11/11. **Supported by NSF \$28,240**

- Chair of the organizing committee of the International Conference on Nano-Materials and Renewable Energies: Safi (Morocco) July 2010
- Co-Organizer of the Euro-Med Conference on Materials and Renewable Energies: Marrakech (Morocco) November 2011.
- Co-organizer of the 13th Vibrations at Surfaces: Orlando, March 2010
- Member of the organizational team of the American Physical Society March Meeting: 2005 and 2007 and 2009.
- Co-organizer of the African-USA Workshop on Nanoscience and Nanotechnology, Marrakech, December 2005.
- Co-organizer of a Focused Session (Computational Nanoscience) APS March Meeting 2005.
- Co-organizer of the First and Second LEAP-KMC Workshop, Manhattan, KS May 2005 and 2006.
- Co-organizer of the 9th (1999) and the 11th (2003) International Surface Phonons Workshop.

Referee and Editor experience:

- **Editor of the first proceedings of the Third International Meeting on Silicene:** Istres (France), June (2013).
- **Guest-Co-editor of the proceedings of the Euro-Med Conference on Materials and Renewable Energies:** Marrakech (Morocco) November 2011.
- **Guest-Co-editor of the proceedings of the International Conference on Nano-Materials and Renewable Energies:** Safi (Morocco) July 2010. Published by the Global Journal of Physical Chemistry Volume2, Issue 2, 2011.
- **Referee for Journals:** Physical Review Letters; Physical Review B; Journal of Nanoscience and Nanotechnology; Surface Science; Journal of Physics Condensed Matter; Journal of Chemical Physics; and Materials letters; Global Journal of Physical Chemistry; Journal of Physical Chemistry C.
- **Reviewing proposals** for NSF and DOE (since 2008).
- **Managerial experience:**
Project Manager (2005): (Learning-Enhanced-Adaptive-Parallel Kinetic Monte Carlo) LEAP-KMC, Kansas State University.



AWARDS

Collaborative work on Li Air Batteries, \$90,000, single PI: A. Kara, Argonne National Laboratory, 15/01/2016-10/31/2017.

Adsorption and Growth of Organic Materials on Metal Surfaces, \$618,000, single PI: A. Kara, DOE, 08/01/2011-12/31/2018.

TUES, Active Learning Strategies for Algebra-based Introductory Physics Courses, \$199,972, Co-PI: A. Kara, TS Rahman, University of Central Florida.

University of Central Florida In-House Grant, \$7,500, single PI: A. Kara, 2009.
University of Central Florida In-House Grant, \$7,500, single PI: A. Kara, 2011.
NSF: US Morocco Workshop on Nano-Materials and Renewable Energies \$28,240, single PI: A. Kara. 2011.

National facilities run by DOE (NERSC): Award of 6.45 million computing core-hours, single PI: A. Kara, 2017.

National facilities run by DOE (NERSC): Award of 4.75 million computing core-hours, single PI: A. Kara, 2016.

National facilities run by DOE (NERSC): Award of 4.3 million computing core-hours, single PI: A. Kara, 2015.

National facilities run by DOE (NERSC): Award of 4 million computing core-hours, single PI: A. Kara, 2014.

National facilities run by DOE (NERSC) through the ASCR Leadership Computing Challenge: Award of 6 million computing core-hours. Only 29 awards nationwide (my award was the only one in the state of Florida) single PI: A. Kara, 2013.

Recent Invited and Keynote talks (24 since 2013)

- Invited Talk at the University of Catania, Italy, June 2017.
- Two Invited Lectures at the Epioptics-14 School, Ettore Majorana Foundation, Erice, Italy, July 2016.
- Invited talk at the 2^d Computational and Theoretical Chemistry PIs Meeting, May 2016
- A series (5) of lectures at the 1st Bou-Regreg Summer school: July 2015
- Keynote Speaker at the Workshop on Nano-Materials for Renewable Energy, Rabat, Morocco, October 2015
- Colloquium for the Doctoral School, University of Milan Bicocca, Italy, May 2015
- Invited talk at the 1st Computational and Theoretical Chemistry PIs Meeting, April 2015
- Colloquium MASCIR, Rabat, Morocco, March 2015
- Keynote speech on DFT+Van der Waals: IRSEC14, Ouarzazate, Morocco October 2014
- Lecture on Silicene, Summer School at Erice: July 2014, Italy
- Colloquium at University Paris-Sud: July 2014, France.
- Colloquium at SOLEIL: Nov. 2013, France.
- Colloquium at the Universite Pierre et Marie Curie, Paris, France, Dec. 2013
- Three Lectures at the Astrophysics Meeting, Observatoire de Paris: Sept. 2013
- Two talks at the Nanotechnology Center of Izmir (Turkey): June 2013

- Colloquium: University of Groningen: July 2013



INTERNATIONAL COLLABORATIONS

Professors Hamid Oughaddou and Hanna Enriquez, University of Paris Sud:

My collaboration with Professors Oughaddou and Enriquez started several years ago where we have first discussed several aspects of surface alloying. A couple of years ago, we embarked on a collaborative work on semi-conductor adsorption on Ag and Au surfaces. My role is to provide a theoretical support to the observed structures. I use ab initio calculations based on Density Functional Theory in the “pseudo-potential” and “full-potential” forms, depending on the system at hand and the issues to be tackled. Our fruitful collaboration on Silicene resulted on over 10 papers published in the most prestigious journals.

Dr. Claude Henry, CNRS-Marseille:

I collaborate with Dr. Henry on several aspects of the catalytic properties of metal surfaces and nano-articles for which I use DFT calculations to determine the adsorption of molecules on a variety of environments.

Professors Thomas Greber and Jurg Osterwalder, University of Zurich:

I have calculated, using DFT, the electronic surface states for a variety of vicinal surfaces of Cu and Au that compare and explain phenomena observed by the group of Greber and Osterwalder. My calculations also explained the differences in optical properties of Cu vicinal surfaces. This collaboration now involves calculation of the adsorption of organic molecules on metal surfaces.

Professor Thomas Jung, PSI Switzerland:

I have calculated the atomic and electronic structure of pentacene adsorption on Cu(110) clean and Oxygen covered (reconstructed) surfaces and found strong evidence of chemisorptions which has been confirmed experimentally in the group of professor Thomas Greber.

Professor Yahia Boughaleb, President of the University Chouaib Doukkali, Morocco:

I collaborate with Pr. Boughaleb on problems related to thin film growth, especially problems related to single and multi-atom homo and hetero diffusion on metal surfaces. I am also co-supervising Khalid Sbiaai, a PhD student at El-Jadida.

Dr. Kathrin Muller, Zernike Institute for Advanced Materials, University of Groningen, Netherland

Professor Vladimir Esaulov, Universite Paris Sud, France (Core Level Energies: XPS)

Dr. Jun Zhang, Paul Scherer Institute, Switzerland (STM and STS for molecules)

Dr. Azzedine Bendounan, SOLEIL (the French synchrotron), France (XPS, UPS)

Dr. Michele Sauvage, SOLEIL (the French synchrotron), France (SXR)

131. W. Malone, J. Matos and **A. Kara**, Adsorption of thiophene on transition metal surfaces with the inclusion of van der Waals effects, Surf. Sci. **669**, 121 (2018)
130. A. Sibari, Z. Kerrami, **A. Kara**, A. Ennaoui, M. Hamedoun, A. Benyoussef, O. Mounkachi and M. Benaissa, Adsorption and diffusion on a phosphorene monolayer: a DFT study, J. Solid Stat. Electro-Chem. **22**,11 (2018)
129. T. Jiang, W. Malone, Y. Tong, D. Dragoë, A. Bendounan, **A. Kara**, V.A. Esaulov, I Thiophene Derivatives on Gold and Molecular Dissociation Processes, J. Phys. Chem. C **121**, 27923 (2017)
128. W. Malone, H. Yildirim, J. Matos and **A. Kara**, A van der Waals Inclusive Density Functional Theory Study of the Nature of Bonding for Thiophene Adsorption on Ni(100) and Cu(100) Surfaces, J. Phys. Chem. C, **121**, 6090 (2017)
127. S. Sadeddine, H. Enriquez, A. Bendounan, P. K. Das, I. Vobornik, **A. Kara**, A. J. Mayne, F. Sirotti, G. Dujardin, and H. Oughaddou, Compelling experimental evidence of a Dirac cone in the electronic structure of a 2D Silicon layer, Sci Rep. **7**: 44400 (2017)
126. A. Sibari, A. El Marjaoui, M. Lakhali, Z. Kerrami, **A. Kara**, M. Benaissa, A. Ennaoui, M. Hamedoun, A. Benyoussef and O. Mounkachi, Phosphorene as a promising anode material for (Li/Na/Mg)-ion batteries: A first-principle study, doi.org/10.1016/j.solmat.2017.06.034 (2017)
125. K. Quertite, K. Lasri, H. Enriquez, A. J. Mayne, A. Bendounan, G. Dujardin, N. Trcera, W. Malone, A. El Kenz, A. Benyoussef, **A. Kara** and H. Oughaddou, Atomic Structure of Submonolayer NaCl Grown on Ag(110) Surface, J. Phys. Chem. C, **121**, 20272 (2017)
124. H. Yildirim and **A. Kara**, Computational Studies of Silicene on Silver Surfaces A chapter book. *Silicene*, Springer International Publishing, p. 203 (2016).
123. K. Müller, J. C. Moreno-López, S. Gottardi, U. Meinhardt, H. Yildirim, **A. Kara**, M. Kivala, M. Stöhr, Cyano-Functionalized Triarylaminés on Coinage Metal Surfaces: Interplay of Intermolecular and Molecule–Substrate Interactions, Chem.–A European Journal **22**, 581 (2016).
122. O. Mounkachia, E. Salmanib, M. Lakhala, H. Ez-Zahraouyb, M. Hamedouna, M. Benaissab, **A. Kara**, A. Ennaouid and A. Benyoussef, Band-gap engineering of SnO₂, Solar Energy Materials and Solar Cells, **148**, 34 (2016).
121. J. Jia, **A. Kara**, L. Pasquali, A. Bendounan, F. Sirotti, and V.A. Esaulov, On the Sulfur Core Level Binding Energies in Thiol Self-Assembly and Alternative Adsorption Sites: an Experimental and Theoretical Study, J. Chem. Phys. **143**, 104702 (2015).
120. H. Yildirim, J. Matos and **A. Kara**, Role of Long-Range Interactions for the Structure and Energetics of Olympicene Radical Adsorbed on Au (111) and Pt (111) Surfaces, J. Phys. Chem. C, **119**, 25408 (2015).
119. J. Matos, H. Yildirim and **A. Kara**, Insight into the Effect of Long Range Interactions for the Adsorption of Benzene on Transition Metal (110) Surfaces J. Phys. Chem. C, **119**, 1886 (2015).

118. H. Oughaddou, H. Enriquez, M. R. Tchalala, H. Yildirim, A.J. Mayne, A. Bendounan, G. Dujardin, M. Ait Ali, **A. Kara** Silicene, a promising new 2D material, *Progress in Surf. Sci.* **90**, 46 (2015).
117. M. Sauvage-Simkin, A. Coati, Y. Garreau, A. Vlad, K. Müller, A. Bendounan, **A. Kara**, In-Depth Atomic Structure of the Pentacene/Cu (110) Interface in the Monolayer Coverage Regime: Theory and X-ray Diffraction Results *J. Phys. Chem. C* **118** 27815 (2014).
116. J. Matos, T. Rojas, H. Yildirim and **A. Kara** On the role of long range interactions for the adsorption of sexithiophene on Ag(110) surface. *J. Chem. Phys.*, **140** 144703 (2014).
115. S. Gottardi, K. Muller, J.C. Moreno-Lopez, H. Yildirim, U. Meinhardt, M. Kivala, **A. Kara**, M. Stohr. Cyano-functionalized triarylaminos on Au(111): competing intermolecular and molecule/substrate interactions. *Adv. Mater. Int.*, **1**, 1300025 (2014).
114. M.R. Tchalala, H. Enriquez, H. Yildirim, **A. Kara**, A.J. Mayne, G. Dujardin, M. Ait Ali and H. Oughaddou Atomic and electronic structure of the $(\sqrt{13}\times\sqrt{13})R13.9$ silicene sheet on Ag(111). *Appl. Surf. Sci.*, **303**, 6166 (2014).
113. **A. Kara**, H. Enriquez, J.L. Lemaire and H. Oughaddou 3rd International Meeting on Silicene (IMS3). *J. Phys. Conf. Series*, **491**, 01101 (2014).
112. M.R. Tchalala, H. Enriquez, A.J. Mayne, **A. Kara**, G. Dujardin, M. Air Ali and H. Oughaddou Atomic structure of silicene nanoribbons on Ag(110). *J. Phys. Conf. Series*, **491**, 01202 (2014).
111. H. Enriquez, **A. Kara**, A.J. Mayne, G. Dujardin, H. Jamgotchian, B. Aufray and H. Oughaddou Atomic structure of the $(2\sqrt{3}\times 2\sqrt{3})R30$ of silicene on Ag(111) surface. *J. Phys. Conf. Series*, **491**, 01204 (2014).
110. V. Bocchetti, H.T. Diep, H. Enriquez, H. Oughaddou and **A. Kara** Thermal stability of standalone silicene sheet. *J. Phys. Conf. Series*, **491**, 01208 (2014).
109. K. Sbiaai, Y. Boughaleb, **A. Kara**, S. Touhtouh and B. Sahraoui Long jumps contribution to the adatom diffusion process near the step edge: The case of Ag/Cu(110) *Phys. Status Solidi B*, **251** 838 (2014).
108. K. Sbiaai, A. Eddiai, Y. Boughaleb, M. Mazroui, J.Y. Raty, M. Meddad and **A. Kara** Diffusion processes on missing-row surfaces, *Opt. Quant. Elect.* **46**, 15 (2014).
107. H Yildirim, T Greber, **A Kara**, Trends in Adsorption Characteristics of Benzene Transition Metal Surfaces: Role of Surface Chemistry and Van Der Waals Interactions *J. Phys. Chem. C* **117**, 20572 (2013).
106. M.R. Tchalala, M.A. Ali, H. Enriquez, **A. Kara**, A. Lachgar, S. Yagoubi, E. Foy, E. Vega, A. Bendounan, M.G. Silly, F. Sirotti, S. Nitshe, D. Chaudanson, H. Jamgotchian, B. Aufray, A.J. Mayne, G. Dujardin, H. Oughaddou Silicon sheets by redox assisted chemical exfoliation. *J. of Phys.: Cond. Matt.* **25**, 442001 (2013).
105. M. R. Tchalala, H. Enriquez, A. J. Mayne, **A. Kara**, S. Roth, M. G. Silly, A. Bendounan, F. Sirotti, Th. Greber, B. Aufray, G. Dujardin, M. Ait Ali, and H. Oughaddou, Formation of one-dimensional self-assembled silicon nanoribbons on

Au(110)-2x, 1Appl. Phys. Lett. **102**, 083107 (2013).

- 104.** G. Nandipati, **A. Kara**, S.I. Shah, T.S. Rahman
Kinetically driven shape changes in early stages of two-dimensional island coarsening: Ag/Ag (111). Phys. Rev. B **88** (11), 115402 (2013)
- 103** K. Sbiaai, Y. Boughaleb, **A. Kara**, S. Touhtouh and B. Sahraoui
Long jumps contribution to the adatom diffusion process near the step edge: The case of Ag/Cu(110) Physica Status Solidi (b) (2013).
- 102** K. Sbiaai, A. Eddiai, Y. Boughaleb, A. Hajjaji, **A. Kara**
Ag adatom and dimer motion on Cu (110)(1x2) missing row surface. Opt. Mat. **36** (1), 42-46 (2013).
- 101.** K. Sbiaai, Y. Boughaleb, **A. Kara**
Dynamics of Cu monomer, dimer and trimer on Ag (110)(1x2) missing-row reconstructed surface Surf. and Int. Anal. **45** (11), 1702-1708 (2013).
- 100.** K. Sbiaai, Y. Boughaleb, M. Mazroui, A. Hajjaji, **A. Kara** Energy barriers for diffusion on heterogeneous stepped metal surfaces: Ag/Cu (110) Thin Solid Films **548**, 331-335 (2013)
- 99.** Z Majzik, M Rachid Tchalala, M Švec, P Hapala, Henriquez, **A Kara**, A J Mayne, G Dujardin, P Jelínek and H Oughaddou,
Combined AFM and STM measurements of a silicene sheet grown on Ag(111) Surface, J. Phys. Condens. Matter. **25**, 225301 (2013).
- 98.** S.I. Shah, G. Nandipati, **A. Kara**, and T.S. Rahman
Self-diffusion of small Ni islands on the Ni(111): a self-learning kinetic Monte Carlo Study, Phys. Rev. B **88**, 035414 (2013).
- 97.** H. Yildirim and **A. Kara**, Effect of van der Waals interactions on the Adsorption of Olympicene Radical on Cu(111): Characteristics of Weak Physisorption versus Strong Chemisorption, J. Phys. Chem. C, C **117** (6), 2893-2902 (2013).
- 96.** K. Muller, A.P. Seitsonen, T. Brugger, J. Westover, T. Greber, T. Jung, and **A. Kara**,
Electronic Structure of an Organic/Metal Interface: Pentacene/Cu(110), J. of Phys. Chem. C **116**, 23465 (2012).
- 95.** B.R. Cuenya, L.K. ONO, J.R. Croy, K. Paredis, **A. Kara**, H. Heindrich, J. Zhao, E.E. Alp, A.T. DelaRiva, A. Datye, E.A. Stach, and W. Keune, Size-dependent evolution of the atomic vibrational density of states and thermodynamic properties of isolated Fe nanoparticles, Phys. Rev. B **88**, 165406 (2012).
- 94.** D. Le, **A. Kara**, E. Schroder, P. Hyldgaard, and T.S. Rahman, Physisorption of nucleobases on graphene: a comparative van der Waals study, J. Phy. Condens. Matter. **24**, 424210 (2012).
- 93.** H. Enriquez, S. Vizzini, **A. Kara**, B. Lalmi and H. Oughaddou, Silicene structures on silver surfaces, J. Phys. Condens. Matter **24**, 314211 (2012).
- 92.** K. Sbiaa, Y. Boughaleb, J.Y. Raty, A. Hajjaji, M. Mazroui, and **A. Kara**, Numerical study of atomic diffusion processes of copper on silver (110) surface: Cu/Ag (110), J. Opto. Adv. Mat. **14**, 1059 (2012).
- 91.** **A. Kara**, H. Enriquez, L. Yan Voon, A. Seitsonen, S. Vizzini, and H. Oughaddou, A Review on Silicene: a New Candidate for Electronics, Surf. Sci. Rep. **67**, 1 (2012).

90. H. Yildirim, **A. Kara**, T.S. Rahman, Tailoring Electronic Structure Through Alloying: The $\text{Ag}_n\text{Cu}_{34-n}$ ($n=0-34$) Nanoparticle Family, J. Phy. Chem. C, **116**, 281 (2012).
89. G. Nandipati, **A. Kara**, S.I. Shah, and T.S. Rahman, New Off-Lattice Pattern Recognition Scheme for Off-Lattice Kinetic Monte Carlo Simulations, J. Comp. Phys. **231**, 3548 (2012)
88. J. Westover, H. Enriquez, H. Oughaddou, and **A. Kara**, Metallization of SiC(100) 3x2 Surface: a DFT Investigation, Surf. Sci., **606**, 1471-1474 (2012).
87. H. Enriquez, A. Mayne, **A. Kara**, S. Vizzini, S. Roth, B. Lalmi, A. P. Seitsonen, B. Aufray, T. Greber, R. Belkhou, G. Dujardin and H. Oughaddou, Adsorption of silicon on Au(110): an ordered 2D surface alloy, Appl. Phys. Lett. **101**, 021605 (2012).
86. S.I. Shah, G. Nandipati, **A. Kara** and T.S. Rahman, Extended Pattern Recognition Scheme for Self-learning Kinetic Monte Carlo (SLKMC-II), J. Phy. Condens. Matt. **24**, 354004 (2012).
85. A.Karim, **A. Kara**, O. Trushin, T.S. Rahman, The crossover from collective motion to periphery diffusion for two-dimensional adatom-islands on Cu(111), J. Phy. Condens. Matt. **23**, 462201 (2011).
84. G. Nandipati, **A. Kara**, S. I. Shah, and T.S. Rahman, Island Size Selectivity during 2D Island Coarsening of Ag(111), J. Phys.: Condens. Matter **23**, 262001 (2011).
83. **A. Kara**, H. Enriquez, S. Vizzini, B. Ealet, B. Aufray, H. Oughaddou, A Silicon Monolayer on Ag(111), Global Journal of Phys. Chem. **2**, 145 (2011).
82. K. Sbiaa, Y. Boughaleb, J-Y. Raty, A. Arbaoui, and **A. Kara**, Surface Diffusion of Ag adatom on Cu(110) by Molecular Dynamics Simulation, Global J. of Phys. Chem. **2**, 157 (2011).
81. B. Lalmi, H. Oughaddou, H. Enriquez, **A. Kara**, S. Vizzini, B. Ealet, and B. Aufray, Epitaxial growth of a silicene sheet, Appl. Phys. Lett. **97**, 223109 (2010)
80. B. Aufray, **A. Kara**, S. Vizzini, H. Oughaddou, C. Léandri, B. Ealet, and G. Le Lay, Graphene-like silicon nanoribbons on Ag(110): A possible formation of silicene, Appl. Phys. Lett. **96**, 183102 (2010) (*This paper made the cover of APL journal and was among the top ten most downloaded paper, from APL, during the month of June 2011; this paper was also the subject of a highlight in Nature Nanotechnology and several news media*).
79. P. De Padova, C. Quaresima, C. Ottaviani, P. M. Sheverdyaeva, P. Moras, C. Carbone, D. Topwal, B. Olivieri, **A. Kara**, H. Oughaddou, B. Aufray, and G. Le Lay, Evidence of graphene-like electronic signature in silicene nanoribbons, Appl. Phys. Lett. **96**, 261905 (2010).
78. **A. Kara**, S. Vizzini, C. Leandri, B. Ealet, H. Oughaddou, B. Aufray, and G. Le Lay, Silicon Nano-Ribbons on Ag(110): a computational investigation. J. Phys. Condens. Matter **22**, 045004 (2010).
77. H. Yildirim, **A. Kara**, T.S. Rahman, R. Heid, and K-P. Bohnen, Surface Vibrational Thermodynamics from *ab initio* Calculations for fcc(110), Surf. Sci. **604**, 308 (2010).
76. F. Rabbering, **A. Kara**, H. Wormeester, T. Warnaar, O. Trushin, T.S. Rahman, and B. Poelsema, Dispersed Forces from Measured Shape Anisotropy of Adatom Islands: Revelations from an Accelerated Simulation Scheme. Phys. Rev. Lett. **103**, 096105 (2009).

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