

Michael O. Atambo

Curriculum Vitae

Education

- 1994 – 1998 **KCPE**, *Central Primary*, Naivasha.
- 1998 – 2001 **KCPE**, *Moi Primary*, Nakuru.
Kenya Certificate of Primary Education
- 2002 – 2005 **KCSE**, *Molo Academy*, Nakuru.
Kenya Certificate of Secondary Education
- 2007 – 2011 **Undergraduate**, *Moi University*, Eldoret, Kenya.
BSc. Physics (Major), Math (Minor)
- 2011 – 2013 **Masters**, *University Of Eldoret*, Eldoret, Kenya.
MPhil. in Computational Material Science
- 2015 – **PhD**, *University of Modena and Reggio Emilia*, Modena, Italy.
In Progress
- | | | |
|---------|--------------------------|--|
| English | Expert skill level | <i>Primary Language, and medium of Education</i> |
| Swahili | Intermediate skill level | <i>Secondary Language</i> |

Masters Thesis

- Thesis Title *Electronic and Mechanical Properties of cubic Boron Nitride and Carbon Boron Nitride : A Quantum Monte Carlo Study*

Experience and Training

- 2011 – 2014 **Research Student/HPC facilitator** , *CMSG Research group*, University Of Eldoret.
Maintained the computing cluster for the CMSG research group, and trained researchers on usage, setting up various compute codes on it and making optimal use of the resource. I also set up the cluster afresh to bring it up to more recent stable version of the CentOS operating system. As part of my research i gain knowledge and experience with the Quantum Espresso suite of computer codes, as well as with the QMC code CASINO, and used these to produce the results of my masters theses. The group's web address is <http://cmsg.uoeld.ac.ke>

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2014 – 2015 **T.R.I.L Fellow**, International Center for Theoretical Physics I.C.T.P .

I was trained on the job with skills needed to solve problems requiring the application of HPC techniques, including both knowledge required to setup HPC facilities and the associated software infrastructure, as well as parallel programming techniques to make efficient use of modern shared and distributed memory computer architectures. Additionally, the knowledge and experience gained was used in a collaboration with scientists from the Condensed Matter Research Group, where existing research code was parallelized to take advantage of modern multicore and distributed memory architectures, using modern scientific libraries created for HPC applications, (TRILIOS and PLASMA). I also received invaluable knowledge from the Master in High Performance Computing (MHPC) program run by the ICTP, where i acted as a teaching assistant to a HPC Specialist, and also attended the courses provided to the students. From the fellowship i also gained experience with the use of QE-GPU, a port of the Quantum Espresso made to utilize hybrid CPU/GPU architectures.

Technical Skills

Operating systems

2008-present **Linux** .

I have advanced knowledge on linux as a systems administrator (4 yrs) and advanced user (7 yrs)

Programming Languages

2011–present **Python**, 5 yrs experience.

2011–present **Javascript**, 5 yrs experience.

2014–present **C++**, 3 yrs experience.

2014–present **Fortran**, 3 yrs experience.

2014–present **C**, 3 yrs experience.

Web frameworks

2011-present **Django**, Im well versed with the Django web framework.

2012–present **Tornadoweb**, Im well versed with the non-blocking high performance tornado web server, and writing applications with it..

High Performance Computing clusters

2013–2014 **HPC cluster Setup**, I have the knowledge and experience for setting up and maintaining high performance computing facilities, and have setup one and maintained it at the CMSG research group's facilities, (currently consisting of a 4 node,48 cores total, of compute capacity and job scheduling system).

Conference Presentations

2012 M.O. Atambo, G. O. Amolo, N. W. Makau, Mechanical and electronic properties of cubic BN and BC_2N , "First national science, technology and innovation week", KICC, 7th – 11th May 2012. *Awarded 2nd place in Best scientific Presentations.*

2012 M.O. Atambo, G. O. Amolo, N. W. Makau, First Principle Calculation of Mechanical and Electronic Properties of BN and BC_2N , Inaugural conference of nanotechnology and material science development in Kenya, Kenyatta University, Juja, 18th – 20th July 2012.

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===== Foundations

- 2015 Michael O Atambo, N W Makau, G O Amolo, and Ryo Maezono, QMC and phonon study of super-hard cubic boron carbon nitride, Materials Research Express, 2,10, 2015, pp 105902: [hyperlink](#).
- 2016 Davide Campi et al, Development of the AiiDA plugins for the flagship codes. Deliverable D3.2 of the H2020 project MaX (final version as of 31/08/2016). EC grant agreement no: 676598, EPFL, Lausanne, Switzerland.

===== Schools and Workshops Attended

- 2012 African School on Electronic Structure Methods and Applications (ASESMA -2012), Chepkoilel University College, Eldoret, Kenya, 28th May to 8th June 2012.
- 2013 16th International Workshop on Computational Physics and Materials Science: Total Energy and Force Methods, the I.C.T.P. Miramare -Trieste, Italy, 10 – 12th January 2013.
- 2013 Hands-on Tutorial on Electronic Structure computations, the I.C.T.P, Miramare-Trieste, Italy, 14 – 18th January 2013.
- 2013 JAIST International Winter school 2012: Quantum Monte Carlo Electronic Structure Calculation, Japan Advance Inst. of Sci. and Tech, Ishikawa, Japan, 19 – 23rd February 2013.
- 2013 Workshop on High Performance Computing (HPC) Architecture and Applications in the ICTP, 14-25 October, 2013, the I.C.T.P. Miramare -Trieste, Italy
- 2014 School on Parallel Programming and Parallel Architecture for HPC and Developer School for HPC applications in Earth Sciences + Symposium on HPC and Data-Intensive Applications in Earth Sciences, 27 Oct - 14 Nov, 2014, the I.C.T.P. Miramare -Trieste, Italy
- 2016 A MARVEL/MaX/Psi-k Tutorial on high-throughput computations: general methods and applications using AiiDA, June 22 to 24, 2016 at EPFL (Lausanne, Switzerland)

===== References

- Prof G.O. Department of Physics, School of Science, University of Eldoret, (amolo@uoeld.ac.ke, georgeamolo862@gmail.com)
- Dr N.W. Department of Physics, School of Science, University of Eldoret and ICT Directorate, Makau (wambua@uoeld.ac.ke, ictdirector@uoeld.ac.ke, wanimak@yahoo.com)

===== interests

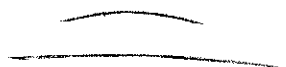
Research

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2011-Present **Physics/Computing.**

Over the course of my graduate studies and current experience at the ICTP, I have developed an extensive skill set in the application of computing techniques used to enable research, from system administration required for linux clusters to research codes used in the modelling and description of physical problems in computational material science. I have a strong interest in developing these HPC skills further, and their application to the solution of difficult problems in condensed matter physics, as well as contributing to the advancement of knowledge in the physical sciences.

05/09/2016

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