

ACHRAF ATILA

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Friedrich-Alexander-Universität Erlangen-Nürnberg, Materials Science and Engineering,
Institute I, Martensstr. 5, Erlangen 91058,
Germany

EDUCATION

PhD Student Friedrich-Alexander-University of Erlangen-Nürnberg,

Thesis: “Influence of the topology and network connectivity on the deformation and fracture of oxide glasses”

Advisor: Prof. Dr.-Ing. Erik Bitzek

M2 University of Hassan II, Physics of Materials and Nanomaterials, 2017

Thesis: “Molecular dynamics simulation of the thermodynamic and structural properties of calcium aluminosilicate glasses”

Advisors: Prof. Said Ouaskit, Prof. Abdellatif Hasnaoui

M1 University of Hassan II, Physics and New Technologies, 2016

BS University of Hassan II, Physics and Applications, 2015

RESEARCH EXPERIENCE

Research Associate, Friedrich-Alexander-University of Erlangen-Nürnberg (2018 –)

Teaching assistance, Friedrich-Alexander-University of Erlangen-Nürnberg (2018 – Present)

- Precourse MatLab/Octave and Linux
- Introduction to atomistic simulation methods
- Student exams supervision

Master Research Internship, Faculty of Sciences Ben M’Sik – (LPMC), CASABLANCA, 2017

Advisor: Prof. Said Ouaskit, Prof. Abdellatif Hasnaoui

Project Title: “Molecular dynamics simulation of thermodynamics and structural properties of calcium aluminosilicate glasses”.

Bachelor Internship Faculty of Sciences Ben M’Sik – (LPMC), CASABLANCA, 2015

Advisor: Prof. Mohamed Bennai

Project Title: “Introduction to Quantum Information Processing”.

PUBLICATIONS

Publications:

- On the Presence of Nanoscale Heterogeneity in $\text{Ni}_{15}\text{Co}_{15}\text{Al}_{70}$ Metallic Glass Under Pressure. **A. Atila***, M. Kbirou*, S. Ouaskit, A. Hasnaoui, (Submitted)
- Atomic Structure and Modifiers Clustering in Silicate glasses: Effect of Modifier Cations. **A. Atila** (Submitted)
- Ionic self-diffusion and the glass transition anomaly in aluminosilicates. **A. Atila**, A. Hasnaoui, S. Ouaskit, (submitted, arXiv:2004.11117)
- Atomistic insights into the impact of charge balancing cations on the structure and properties of aluminosilicate glasses. **A. Atila**, M. Ghardi A. Hasnaoui, S. Ouaskit, *Physical. Review. B*, 100, 144109 (2019), doi: 10.1103/PhysRevB.100.144109
- Alumina effect on the structure and properties of calcium aluminosilicate in the percalcic region: A molecular dynamics investigation. **A. Atila**, M. Ghardi, A. Hasnaoui, S. Ouaskit, *Journal of Non-Crystalline Solids*, 525, 119470 (2019), doi: 10.1016/j.jnoncrysol.2019.119470
- Computational Insights into the Structure of Barium Titanosilicate Glasses. E.M. Ghardi, **A. Atila**, M. Badawi, A. Hasnaoui, S. Ouaskit, *Journal of American Ceramic Society*, 102, 6626 (2019), doi: 10.1111/jace.16536

Publications in Progress:

- Atomistic Insights into the Structure and Bioactivity of densified 45S5 Bioactive Glass. Y. Ouldhnini*, **A. Atila***, S. Ouaskit, K. Sbiaai, A. Hasnaoui, (1st draft ready)

* Equal contribution

**PRESENTATIONS
AND POSTERS**

Talk, “Atomistic Study of Mechanical and Structural Anisotropy of Metaphosphate Glasses”. ISAM⁴ Symposium, Erlangen, Germany on August 5-8, 2019. A. Atila, E. Bitzek

Poster, “Mixed alkaline-earth effect in metaphosphate glasses”. DGG conference, Nürenberg, Germany on May 13-15, 2019. A. Atila, E. Bitzek

Poster, “Structural and mechanical properties of sodium, magnesium and calcium metaphosphate glasses: insights from molecular dynamics simulations”. DPG spring meeting, Regensburg, Germany on April 1-5, 2019. A. Atila, E. Bitzek

Poster, “Atomistic simulations of silica and metaphosphate glasses: mechanical properties and mechanically-induced structural anisotropy”. SPP1594 Spring school “Glass under load” Dusseldorf, Germany on February 19-22, 2019. A. Atila, S. Ganisetti, E. Bitzek

Poster, “The role of disorder in the BaO-TiO₂-SiO₂ glass plasticity: a molecular dynamics study”. 9^{ème} Rencontre nationale des jeunes chercheurs en physique in Casablanca, Morocco on 27-29 December 2018. E.M. Ghardi, A. Atila, A. Hasnaoui, S. Ouaskit.

Paris International School on Advanced Computational Material Science – PISACMS2018, Paris, France on 26.08-02.09.2018

Poster, “Silica content effects on the elastic and structural properties of calcium aluminate glass: Insights from molecular dynamics.” American Ceramic Society GOMD meeting in San Antonio, Texas, USA on May 20-24, 2018. H. Jabraoui, M. Badawi, A. Atila, S. Ouaskit, S. Lebègue, Y. P. Vaills

Oral, “Alumina content effect on thermodynamic mechanical and structural properties of calcium silicate glass: a molecular dynamics simulation.” 6th International Conference Franco-Maghrebine on Nanomaterials for Energy and Environment (6thCFMNEE), Casablanca, Morocco on 19-21 March 2018. A. Atila, A. Hasnaoui, Y. Vaills, S. Ouaskit

Poster, “Charge balancing cations effect on elastic moduli of aluminosilicate glasses revealed by molecular dynamics simulations”. 6th International Conference Franco-Maghrebine on Nanomaterials for Energy and Environment (6thCFMNEE), Casablanca, Morocco on 19-21 March 2018. A. Atila, M. Ghardi, A. Hasnaoui, S. Ouaskit

Poster, “Structural investigation of TiO₂ role in barium titanosilicate glasses: A molecular dynamics simulation”. 6th International Conference Franco-Maghrebine on Nanomaterials for Energy and Environment (6thCFMNEE), Casablanca, Morocco on 19-22 March 2018. M. Ghardi, A. Atila, A. Hasnaoui, H. Jabraoui, S. Ouaskit

Poster, “Molecular dynamic study of the thermodynamic and structural properties of Calcium Aluminosilicate glass. 2^{sd} International conference of functional materials and their technological applications (CIMFAT). Casablanca, Morocco on 13 October 2017. A. Atila, H. Jabraoui, A. Hasnaoui, S. Ouaskit

**PROFESSIONAL
SERVICE**

Member of the organization committee.

6th International Conference Franco-Maghrebine on Nanomaterials for Energy and Environment (6thCFMNEE), 19-21 March 2018

Member of the organization committee.

1st International Conference on Theoretical and High Energy Physics (ICTHP), 22-24 September 2016

REVIEWER

Journal of Non-Crystalline Solids,
Journal of Applied Physics,
Applied Physics Letters

LANGUAGES

Arabic: Native Language

French: Advanced Listener, Advanced Speaker, Advanced Reading and Writing

English: Advanced Listener, Intermediate Speaker, Advanced Reading and Writing

German: Beginner (A1 level, A2 in progress)

**COMPUTER
SKILLS**

- **Programming:** FORTRAN, C/C++, Python, LATEX
- **Web:** HTML, CSS
- **Software:** MATLAB, MS Office
- **OS:** Windows, Linux (system administration)
- **Plotting:** GNU PLOT, Origin.
- **Simulations:** Classical MD (LAMMPS), Reactive MD.