

Mohamed Ezzat, MSc  

Doctoral student at Geothermal Energy and Geofluids  
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## RESEARCH FIELD

Plasma Physics, Plasma Modeling, Plasma Pulse Geo Drilling, Rock Mechanics, Solids Electric Breakdown, MultiPhysics Modeling.

## POSITIONS

2021 - Now: **Doctoral student**, Geothermal Energy and Geofluids, ETH-Zurich, Switzerland.

2021 - Now:\* **A. Lecturer**, Physics Department, Faculty of Science, MU\*\*, Egypt.

2015 - 2021:\* **Teaching Assistant**, Physics Department, Faculty of Science, MU\*\*, Egypt.

\*On study leave, \*\*Mansoura University.

## EDUCATION

2018 - Now: **Ph.D in Plasma Physics and Geo Drilling**, ETH-Zurich, Switzerland.

Supervisor: Prof. Dr. Marten Saar; Dissertation: Plasma Pulse Geo Drilling under Ambient and High-Pressure Conditions Study with Modeling and Lab Experiment.

2016 - 2018: **MSc in Plasma Physics and Nuclear Fusion**, Ghent University, BE. High Distinction;

Supervisor: Dr. José M. García-Regaña; Thesis: Advanced neoclassical impurity transport modelling with its experimental comparison for TJ-II.

2011 - 2015: **BSc in Physics**, Mansoura University, Mansoura, EG. Excellent with honor (Ranked 1<sup>st</sup>).

## PUBLICATIONS

### In Journals

1. Ezzat, M., D. Vogler, M. O. Saar, and B. M. Adams, Simulating Plasma Formation in Pores under Short Electric Pulses for Plasma Pulse Geo Drilling (PPGD), *Energies*, **14/16**, **2021**.
2. Horacek, J., et al., M. Ezzat, et al., Scaling of L-mode heat flux for ITER and COMPASS-U divertors, based on five tokamaks, *Nuclear Fusion*, **60/6**, **2020**.
3. Ascásbar, E., et al., M. Ezzat, et al., J. M. García-Regaña, et al., and the TJ-II team, Overview of recent TJ-II stellarator results, *Nuclear Fusion*, **59/11**, pp. 1-13, **2019**.

## NUMERICAL SKILLS

### CODES

1. MOOSE: Multiphysics Object-Oriented Simulation Environment.
2. Zapods: A MOOSE Framework application for the simulation of plasmas.
3. EUTERPE: Gyrokinetic Monte Carlo - PIC -  $\delta f$  code. Used in the MSc.

### COURSES

1. Reflectometry: Simulating microwave-plasma interaction. ([View](#))
2. ECRH launcher optimization: Microwave propagation in wave guides. ([View](#))

Programming	HPC & clusters	OS	Editing tools
Python, FORTRAN, Matlab, HTML, CSS, SQL, PHP	Euler@Ciemat and ETH Marconi@Italy MARENostrum@Barcelona	Linux OSX Windows	LaTex, Microsoft office, Inkscape, Inventor

## AWARDS AND SCHOLARSHIPS

Oct 2018: Four years **Ph.D. contract**, ETH-Zürich, Switzerland, **200 CHF** ~ **185 k€**.

Sept 2016: **Erasmus Mundus Scholarship** to study two years MSc, Fusion-EP, **49 k€**.

Nov 2015: **Distinction Award** for ranking the 1<sup>st</sup> in BSc of Physics, **Mansoura University**.

Apr 2015: **Ideal student**, academic year 2014/2015, Faculty of Science, **Mansoura University**.

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## REFERENCES

Prof. Martin O. Saar    Chair of Geothermal Energy and Geofluids, ETH-Zürich, Switzerland. ([Profile](#))  
Ph.D. thesis supervisor    Email: [saarm@ethz.ch](mailto:saarm@ethz.ch) & Tel: +41 44 632 3465

Dr. José M. G. Regaña    National Fusion Laboratory, CIEMAT, Madrid, Spain.  
MSc thesis supervisor    Email: [jose.regana@ciemat.es](mailto:jose.regana@ciemat.es) & Tel: +34 91 346 6434

Dr. Jan Horacek    Institute of Plasma Physics, Prague, Czech Republic. ([Profile](#))  
Internship supervisor    Email: [horacek@ipp.cas.cz](mailto:horacek@ipp.cas.cz) & Tel: +420 731879237