POLYTECHNIQUE MONTRÉAL
LE GÉNIE EN PREMIÈRE CLASSE

Soumaya Benzennou, PhD candidate

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Education

- **École Polytechnique de Montreal, Quebec, Canada** (since 2011)

Ph.D. candidate, Department of Chemical Engineering
Thesis: "Upgrading of oil from household microwave assisted pyrolysis, studied material : Paper and HDPE"

- **École Nationale Supérieure des Mines de Nancy, Nancy, France** (2010)

Engineering Diploma in Process, Energy and Environment Department

- **École ISAE-SUPAERO jointly with University Paul Sabatier, Toulouse, France** (2010)

Master of Science in Engineering

Research Interests

- Environmentally –friendly chemical engineering
- New energies production
- Microwave assisted chemical processes
- Chemical analysis
- Chemical process design and optimization
- Pyrolysis
- Waste valorization and conversion to added value chemicals
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Work Experience in Engineering

• **École Polytechnique of Montreal** Montreal Canada	PhD candidate	2011-
• **École Polytechnique of Montreal** Montreal Canada	Engineering Project supervisor	2011-
• **Institute of Fluid Mechanics of Toulouse (IMFT)** Toulouse, France	Trainee Researcher-assistant	02/2010-09/2010
• **Office National de l'Énergie (ONE)** Kenitra, Morocco	Trainee Engineer-assistant	06/2009-09/2009
• **SeFita,** Meknes, Morocco	Trainee Laborer-assistant	02/2008-03/2008

Other Work Experience

• **School-success**	Tutor for secondary school students	2012-2015
• **Toulouse, France**	Tutor for engineering school student	2009-2010

Expertise

- Engineering projects management
- Microwave assisted pyrolysis
- Product analysis: GC-MS, GC-FID, TGA, Rheology, CHNS, Karl-Fisher, Acid titration, etc.
- Chemical reactor design for various application
- Development of theoretical models based on experimental
- Knowledge transfer and training

Research Background

- Microwave assisted pyrolysis of household waste under different conditions
- Feedstock optimization for the microwave pyrolysis in order to have more competitive oils
- Analysis of pyrolytic oils using different means
- Development and optimization of methods for GC-MS and GC-FID for different oils types
- Coupling heat and mass loss in microwave environment
- Development and optimization of a new microwave assisted TGA to study kinetic parameter for different kinds of feedstocks
- Modeling experimental data using statistical approach
- Experimental validation of models developed for pyrolysis of different feedstocks
- Development of a homemade catalyst based on red mud metallic oxides for hydrogenation
- Validation of catalytic properties by hydrogenation of acetic acid
- Design and supervision of research projects for under-graduate and graduate students.

Teaching Experience

• **Chemical reactors design (Calcul de Réacteurs chimiques)** Polytechnique Montreal, Montreal, QC, Canada	Teacher assistant	2012, 2015