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APPLIQUÉES
RENNES



2 Open Marie Skłodowska-Curie PhD Positions at INSA de Rennes. XP-Resilience Network managed from Trento, ITALY

The Structural Engineering Research Group at INSA de Rennes / LGCGM invites applications to fill two PhD Positions within the Marie Skłodowska-Curie ITN XP-Resilience. The positions are offered to Early Stage Researchers (ESRs).

The **XP-RESILIENCE** network offers a unique opportunity to Early Stage Researchers to investigate various topics related to Structural Resilience and receive multi-disciplinary training from high-profile academics and top Engineers/Managers from industry. **XP-RESILIENCE** intends to establish a network of individual research projects working towards Advanced Modelling and Protection –via metamaterial-based isolators/layouts- of Complex Engineering Systems for Disaster Reduction and Resilient Communities. The objective of XP-RESILIENCE is to deliver high-quality training to ESRs including a strong theoretical basis in reliability/resilience with practical experiences, technological expertise with awareness of the socio-economical context and conviction to furthering research with an entrepreneurial spirit. It aims at offering innovative research training ground as well as attractive career development and knowledge exchange opportunities for 14 Early Stage Researchers (ESRs) through cross-border and cross-sector mobility for future growth in Europe.

The Structural Engineering Group at INSA de Rennes (INSA) (<https://geosax-lgcgm.insa-rennes.fr/accueil-equipe-geosax.html>) will host two ESRs:

- **ESR10:** Development of advanced FE models for the analysis of extreme events of industrial plants. Development of advanced FE models for industrial plant members including regular beams as well as pipes and relevant fragility curves. The main behaviour (local buckling, warping, ovalization, damage) of structural components under earthquakes, fires and flooding will be simulated. Expected Results: A set of tools for the analysis of industrial plants under extreme loadings like earthquake, fire, explosion, flooding and the determination of fragility curves. Applications are welcome from students with a Master degree (5 years curriculum) in Civil/Mechanical engineering, Applied Mechanics with a background in structural analysis, dynamics and numerical modelling. Contact: Pr. Mohammed HIAJ mohammed.hijaj@insa-rennes.fr.
- **ESR11:** Objectives: To develop a macro-element to simulate dynamic SSI which is suitable for both static and dynamic analyses. Two different models will be developed, one for shallow foundations and another for deep foundations. Novel smart layouts of boreholes/tanks based on metamaterial concepts will be developed to mitigate seismic shear waves. Expected Results: A macro-element for shallow foundation and smart layouts for resilient petrochemical plants. Applications are welcome from students with a Master degree (5 years curriculum) in Civil

Engineering, Applied Mechanics with a background in Geomechanics, Structural and Foundation Engineering. Contact: Pr. Mohammed HJIAJ mohammed.hjiaj@insa-rennes.fr.

The Structural Engineering Group is a part of the GEOSAX team. **The Structural Engineering Group** has extensive expertise and knowledge in computational structural mechanics including its theoretical foundations. Over the years, the group was at the forefront of developing Finite elements for high nonlinear and sophisticated structural problems with the aim to provide engineers with appropriate tools for advanced design.

Contract and eligibility:

The successful applicants will be employed under a full-time fixed-term contract in accordance to Marie Skłodowska-Curie ITN regulations. To be eligible, candidates must comply with mobility requirements. Please see http://ec.europa.eu/research/participants/data/ref/h2020/other/guides_for_applicants/h2020-guide-appl16-msca-itn_en.pdf for details.

Starting date:

The application deadline for these two positions at INSA is 10/09/2016. The successful applicants are expected to start mid-October or 1st November at the latest.

Funding

Project Reference: **721816**
Call: **H2020-MSCA-ITN-2016**
Period: **11/2016 -> 10/2019**



How to apply:

Please send you application at your earliest convenience by email to: mohammed.hjiaj@insa-rennes.fr.

Your application should include:

- A cover letter
- Your Résumé
- Contact details (Email and phone number) of two referees

All eligible and qualified candidates are invited to apply.