



**Aquitaine –Karnataka collaboration  
Scientific Project for Pre-PhD student exchange**

**Scientific Proposal**

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| Project Title   | Seismic Sliding Isolation of RC Framed Structures   |                              |
| Scientific domain   | Earthquake Engineering & Base Isolation   |                              |
| Summary<br>(ca. 10 lines)   | <p>Seismic isolation is emerging as a new trend in earthquake resistant design with great potential for the future. A seismically isolated structure experiences reduced seismic forces and accelerations and moves essentially as a rigid body, preventing damage due to deformations. This is achieved by mounting the structure on horizontally flexible devices, known as seismic isolators, which make the structure move in a much slower and smoother fashion, avoiding resonance. In addition, seismic energy imparted to the structure is substantially reduced or dissipated by the isolators, which are properly designed for such a purpose, rather than through inelastic deformations of the structure, which causes damage to its structural and non structural components.</p> <p>The majority of the base isolated buildings in India are constructed using elastomeric bearings, which are more expensive, because of deficiency in expertise and material. In this proposed study the analytical and experimental dynamic response of model of a four storey RC framed building will be investigated using sand or steel rollers as sliding surface between the super structure and the foundation. These systems are passive in nature and they do not require any additional energy source and periodic maintenance.</p> |                              |
| Student profile wished  | Structural and Geotechnical back ground with FEA knowledge  |                              |
| Supervisor Name   | Mr. H. P. Santhosh  |                              |
| Supervisor @<br>& phone   | <b>hpsanthosh.ce.et@msruas.ac.in</b>  | Mob: 9036348290<br>Ext: 2302 |
| Institute/laboratory/industry<br>(full address)   | Faculty of Engineering & Technology<br>M.S Ramaiah University of Applied Sciences<br># 470-P, Peenya Industrial Area, 4 <sup>th</sup> Phase,<br>Peenya, Bangalore – 560058  |                              |
| Director Name<br>Institute/laboratory/industry  | Dr. H.K. Narahari   |                              |
| Contact Aquitaine:<br>Erick Dufourc<br>@: e.dufourc@cbmn.u-bordeaux.fr<br>tél: +33 5 4000 6818  | Contact Karnataka:<br>Dipankardas Sarma<br>@: sarma@sscu.iisc.ernet.in<br>tél: +91 80 2293 2945   |                              |
| <a href="http://www.cbmn.u-bordeaux.fr/aquitaine-karnataka-exchange?lang=2">http://www.cbmn.u-bordeaux.fr/aquitaine-karnataka-exchange?lang=2</a> |   |                              |



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| Director<br>Institute/laboratory/industry<br>@ & phone        | narahari.aae.et@msruas.ac.in   | Tel: 080-49065555<br>Ext: 2128 |
| Timing & duration for<br>project (give approximate<br>ranges) | 4 to 6 months  |                                |
| Representative References                                     | <i>Wai-Fah Chen</i> and Charles Scawthorn (2003) “Earthquake Engineering Handbook”, CRC PRESS, London. |                                |

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| Contact Aquitaine:<br>Erick Dufourc<br>@: e.dufourc@cbmn.u-bordeaux.fr<br>tél: +33 5 4000 6818  | Contact Karnataka:<br>Dipankardas Sarma<br>@: sarma@sscu.iisc.ernet.in<br>tél: +91 80 2293 2945 |
| <a href="http://www.cbmn.u-bordeaux.fr/aquitaine-karnataka-exchange?lang=2">http://www.cbmn.u-bordeaux.fr/aquitaine-karnataka-exchange?lang=2</a> |   |