Université de Strasbourg

ICUBE Laboratoire des sciences de l'ingénieur de l'informatique et de l'imagerie

IPP
Instrumentation et Procédés photoniques
GCE
Génie civil et énergétique

Internship /Proposition de stage recherche
Master /PFE Ingénieur et/ou Master M2

Duration 5 month (March-July 2020)

Subject : Vibration study of a metal/concrete structure with fiber optic and acoustic sensors

ICube Labs Strasbourg, France
Engineering science, computer science and imaging research institute
Equipe / Team :
IPP : Photonics Instrumentation and Processes
GCE : Civil Engineering and Energetics

Context : GCE and IPP are working on the durability of metal/concrete structures using different type of sensors : fiber optic Bragg grating sensors, distributed fiber optic sensors, acoustic sensors and optical triangulation. Under different types of excitations, we want to understand the behaviour of a mixed structure of metal and concrete in different configurations.

Description : The candidate will be involved in design and realization of the structures and experimental setups. Further, he will make measurements, analyze them and compare with developed models.

Required knowledge and interests: sensors (optical & acoustic), signal processing (Matlab, Comsol …), mechanics,

Traineeship grant /Gratification de stage :
Gratification de stage conformément aux règles en vigueur (3,90 €/h ~ 600 €/mois).

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References

J-L Tang and J-N Wang ; Simultaneous temperature and Strain sensing with Optical Fiber Bragg gratings ; Sensor and Transducer Magazine ; **68, 6**, pp. 597-605, (2006)

X. Mei *et al* ; Fast coarse-fine locating method for ϕ-OTDR , Optics Express, **26,3**, pp. 2659-2660 (2018) https://doi.org/10.1364/OE.26.002659

I. Lillamand *et al* , Acoustoelastic effect in concrete material under uni-axial compressive loading, NDT & E International 43, 8, pp. 655-660 (2010). https://doi.org/10.1016/j.ndteint.2010.07.001