

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

Project Title	CFD Simulations of Transverse Jet in Cross-Flow	
Scientific domain	Fluid Dynamics	
Summary (ca. 10 lines)	Transverse injection of jet into crossflow is of fundamental problem of interest. Formation of vertical structures and interactions are of particular interest either to enhance the mixing for combustion, dissipation of smoke from chimney or attenuate the mixing to form a cold jet layer for film cooling in gas turbine blades. Apart from this, pulse injection is also useful for control applications. Further, sonic jet injected into supersonic flow has significant applications in aerospace engineering. The problem will be defined based on the application – either subsonic or supersonic crossflow conditions. ANSYS-CFX software will be used to capture most of the flow structure. Analysis of flow structure will be performed to obtain more details. Modification of geometry and other strategies will be investigated to improve the performance.	
Student profile wished	Undergraduate in Aeronautical, Mechanical or Chemical Engineering with Exposure to CFD Software	
Supervisor Name	Dr. A. T. Sriram	
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Institute/laboratory/industry (full address)	Faculty of Engineering & Technology M.S Ramaiah University of Applied Sciences # 470-P, Peenya Industrial Area, 4 th Phase, Peenya, Bangalore – 560058	
Director Name Institute/laboratory/industry	Dr. H.K. Narahari	
Director Institute/laboratory/industry @ & phone	narahari.aae.et@msruas.ac.in	Tel: 080-49065555 Ext: 2128
Timing & duration for project (give approximate ranges)	6 Months	
Representative References	Margason, R. J., 1993. Fifty Years of Jet in Cross Flow Research. AGARD-CP-534	

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