

## Details of Grant

EPSRC Reference:	<b>GR/R04256/01</b>		
Grant Title:	<b>Large Eddy Simulation of the Turbulent Flow &amp; Heat Transfer In Tube Bundles</b>		
Principal Investigator:	<b>Dr G Papadakis</b>		
Other Investigators:			
Recognised Researchers:			
Project Partners:			
Department:	<b>Mechanical Engineering</b>		
Organisation:	<b>King's College London</b>		
Scheme:	<b>Fast Stream</b>		
Starts:	<b>01 July 2001</b>	Ends:	<b>30 June 2004</b> Value (£): <b>61,649</b>
	<b>Combustion</b>		
	<b>Aerospace, Defence and Marine</b>		<b>Energy</b>
Related Grants:			
Panel History:			

### Summary

Tube bundles are widely employed in cross-flow heat exchanges, the design of which is still based on empirical correlations of heat transfer and pressure drop which are of doubtful accuracy. The numerical study of the flow around tube bundles has challenged Reynolds Averaged Navier-Stokes Equations (RANS) modelling for years. In the last few years, the Large Eddy Simulation (LES) method has provided very good results for simpler flows. An LES code will be developed based on the finite volume method capable of handling complex geometries. The code will be used to simulate the flow and heat transfer characteristics in tube bundles. The numerical results will be compared against available experimental results (mean and rms velocities, heat transfer, pressure drop and vortex shedding frequency). By the end of the project, sound scientific information will have been obtained regarding the accuracy and cost effectiveness of the LES approach in flows inside tub bundles.

