



**Vivien Suphandani  
DJANALI**

**Home Country  
Indonesia**

**Degree  
PhD in Mechanical  
Engineering**

**Expertise  
Computational Fluid  
Dynamics**

**Research Focus  
Preconditioning in the  
Fractional-Step  
Methods of Navier-  
Stokes Equations**

**Host University  
The University of  
Sydney, Australia**

**Fellowship Awarded  
2009**

Vivien Suphandani Djanali was born in 1981 in Madison, Wisconsin in the United States while her parents were pursuing their PhD degrees. At the age of three she moved to Surabaya, Indonesia. Raised in an academic family with a brother and a sister, she loves to teach and since childhood has dreamed of becoming a lecturer.

Vivien is now married with two young children. Although she recognizes the difficulties involved in simultaneously managing children and PhD work, she is determined to achieve her goals.

In 2003 Vivien finished her undergraduate studies in the Mechanical Engineering department at Institute Technology of Sepuluh Nopember, which she then joined as a lecturer. In 2008 she obtained her Master of Engineering (Research) degree from the Faculty of Engineering and Information Technology at The University of Sydney in Australia, where she is now enrolled as a PhD candidate in mechanical engineering.

Vivien is conducting research on direct numerical simulations of incompressible flows using a fractional-step method to simplify the coupling between velocity and pressure in Navier-Stokes equations. Solving the pressure poisson equation in the fractional step method is often the most consuming part, in terms of work, memory and computation time.

The focus of her study is to develop an efficient preconditioner for the pressure poisson equation. The preconditioner is implemented in Fortran language in the code developed at The University of Sydney. It is expected that the resulting preconditioner will accelerate the convergence of the iterative solvers, and thus will improve the efficiency of direct numerical simulations.

When she completes her PhD, Vivien plans to return to teach at Institute Technology of Sepuluh Nopember in Indonesia.