

## Going with the Flow

**Supervisor:** Prof. Mark Biggs in collaboration with a team in the Australian School of Petroleum.

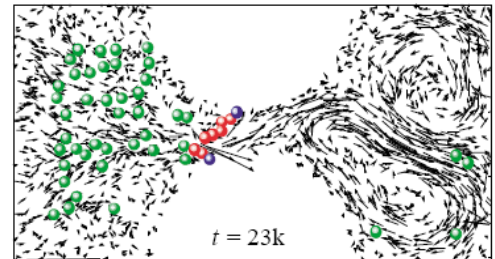
**Nature of work:** Mesoscale simulation of particle suspensions in porous media

**Area:** Leading edge of particle suspensions and colloids.

**Potential implications:** Improved flow of oil, natural gas, CO<sub>2</sub> and water in geological formations.

**Funding:** Via the various University scholarship schemes (see separate information for these).

**Brief description:** Flow of particles suspended in liquids through porous materials are of wide interest – just a few examples include fines transport in oil, gas, CO<sub>2</sub> and water flow in geological formations, flow of air-borne biological entities such as bacteria and viruses through filters and clothing, and water filtration. The ability to model such systems is essential to, for example, improving our ability to exploit natural resources or mitigate the impact of biological agents in biological attacks for instance. This project is concerned with developing and validating against experimental data mesoscale models of colloidal suspension flow in porous media (right). This work will involve interaction with the School of Petroleum Engineering.



*There are many more projects in the areas of multiphase and confined fluid mechanics. Feel free to contact me ([mark.biggs@adelaide.edu.au](mailto:mark.biggs@adelaide.edu.au); +61-8-8303-6317) or drop in to my office (N119) if you want to have further discussion or other possible PhD projects.*