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**Darren G Crowdy\*** ([d.crowdy@imperial.ac.uk](mailto:d.crowdy@imperial.ac.uk)), Dept of Mathematics, Imperial College London, 180 Queen's Gate, SW7 2AZ London, England. *Harmonic and biharmonic problems in fixed and free domains.*

This talk will survey various boundary value problems involving the Laplace equation and the biharmonic equation in both fixed and time-evolving domains. It will be shown that the Fokas transform provides a unified theoretical approach to this class of problems. The free boundary problems considered derive from fluid dynamics and include the Laplacian growth equations (Hele-Shaw problem) as well as free-surface Stokes flows driven by surface tension effects. (Received September 25, 2005)