

Richard W. L. James

CONTACT INFORMATION	Department of Electronic & Electrical Engineering University College London Torrington Place London WC1E 7JE	<i>Tel:</i> +44 (0)20 7679 3195 <i>E-mail:</i> r.james@ee.ucl.ac.uk <i>Nationality:</i> British <i>D.O.B.:</i> 7 th August 1979
RESEARCH INTERESTS	Numerical analysis; finite element analysis, spectral methods and distributed computing, applied to model liquid crystal hydrodynamics and defect structures and microwave devices with liquid crystal substrates.	
EDUCATION	University College London , United Kingdom	
	Ph.D., Electronic & Electrical Engineering	December 2006
	<ul style="list-style-type: none">• Thesis Topic: <i>Modelling the flow-dependent trajectories of electric-field induced disclinations in high resolution liquid crystal devices</i>• Adviser: Dr. F. Aníbal Fernández	
	M.Eng., Electronic & Electrical Engineering	July 2001
	<ul style="list-style-type: none">• Degree classification: <i>First</i>• Project Topic: <i>Visualisation of three-dimensional liquid crystal director fields</i>• Adviser: Dr. F. Aníbal Fernández	
AWARDS	Engineering and Physical Sciences Research Council	
	<ul style="list-style-type: none">• Ph.D. Scholarship	January 2003 to December 2006
	University College London, Department of Electronic & Electrical Engineering	
	<ul style="list-style-type: none">• Dean's Prize	July 2001
ACADEMIC EXPERIENCE	University College London , United Kingdom	
	<i>Research Fellow</i>	December 2006 to present
	<ul style="list-style-type: none">• EPSRC Project: <i>Investigation of Planar Transmission Lines on Liquid Crystal Substrates at mm-Wave Frequencies</i><ul style="list-style-type: none">• Design and fabrication of RF components on liquid crystal substrates, assessment of alignment on standard microwave substrates.• Accurate modelling of the electromagnetic field in microwave devices with liquid crystal substrates for characterisation and device design.	
	<i>Instructor</i>	September 2007 to June 2008
	<ul style="list-style-type: none">• ELEC1004: <i>Object-Oriented Programming</i><ul style="list-style-type: none">• Responsible for lecturing, supervision of laboratory classes, exam paper preparation and marking of this first year undergraduate course. Course involves 30 hours of teaching time, divided between lectures and laboratory classes.	
	<i>Teaching Assistant</i>	September 2005 to June 2006
	<ul style="list-style-type: none">• Instructor for Introductory Matlab Course<ul style="list-style-type: none">• Responsible for the supervision of ten hourlong laboratory sessions in which first year undergraduate students are taught the basics of Matlab: matrix manipulation, curve fitting and data visualisation.	
	<i>Research Assistant</i>	July 2001 to December 2002
	<ul style="list-style-type: none">• European Framework 6 Project: <i>MonLCD</i><ul style="list-style-type: none">• A collaboration involving Philips, Autronic Melchers, the University of Ghent and the University of Torino.• The work involved the development of algorithms for the three-dimensional modelling of liquid crystals using a vectorial representation of the liquid crystal director, taking into account the migration of ionic impurities.	

SELECTED
PUBLICATIONS

- R. James, F. A. Fernandez, S. E. Day, S. Bulja, and D. Mirshekar-Syahkal, "Accurate modeling for wideband characterization of nematic liquid crystals for microwave applications," *Microwave Theory and Techniques, IEEE Transactions on*, vol. 57, no. 12, pp. 3293–3297, Dec. 2009.
- P. J. M. Vanbrabant, J. Beeckman, K. Neyts, R. James, and F. A. Fernandez, "Effect of material properties on reverse flow in nematic liquid crystal devices with homeotropic alignment," *Applied Physics Letters*, vol. 95, no. 15, p. 151108, Oct. 2009.
- I. Papakonstantinou, R. James, and D. Selviah, "Radiation- and bound-mode propagation in rectangular, multimode dielectric, channel waveguides with sidewall roughness," *Lightwave Technology, Journal of*, vol. 27, no. 18, pp. 4151–4163, Sept. 15, 2009.
- E. Willman, F. A. Fernández, R. James, and S. E. Day, "Switching dynamics of a post-aligned bistable nematic liquid crystal device," *J. Display Technol.*, vol. 4, no. 3, pp. 276–281, 2008.
- E. Willman, F. Fernandez, R. James, and S. Day, "Modeling of weak anisotropic anchoring of nematic liquid crystals in the Landau-de Gennes theory," *Electron Devices, IEEE Transactions on*, vol. 54, no. 10, pp. 2630–2637, Oct. 2007.
- R. James, F. A. Fernández, S. E. Day, M. Komarčević, and W. A. Crossland, "Modeling of the diffraction efficiency and polarization sensitivity for a liquid crystal 2D spatial light modulator for reconfigurable beam steering," *J. Opt. Soc. Am. A*, vol. 24, no. 8, pp. 2464–2473, 2007.
- R. James, E. Willman, F. A. Fernández, and S. E. Day, "Finite-element modeling of liquid-crystal hydrodynamics with a variable degree of order," *Electron Devices, IEEE Transactions on*, vol. 53, no. 7, pp. 1575–1582, 2006.
- R. James, G. Stojmenovik, C. Desimpel, S. Vermael, F. A. Fernández, S. E. Day, and K. Neyts, "Influence of ion transport on liquid crystal switching," *IEEE Journal of Display Technology*, vol. 2, no. 3, pp. 237–246, 2006.
- C. Desimpel, J. Beeckman, H. Desmet, K. Neyts, R. James, and F. A. Fernández, "A four-electrode liquid crystal device for 2π in-plane director rotation," *Journal of Physics D: Applied Physics*, vol. 38, pp. 3976–3984, 2005.
- F. A. Fernández, S. E. Day, P. Trwoga, H. Deng, and R. James, "Three-dimensional dynamic modelling of liquid crystal display cells using finite elements," *Mol. Cryst. Liq. Cryst.*, vol. 375, pp. 291–299, 2002.

- A complete list is available at <http://www.ee.ucl.ac.uk/~rjames/publications/rjames.htm>

PROFESSIONAL
EXPERIENCE

Sony Semiconductors and Devices Europe, Basingstoke

Software Engineer (Summer Placement)

July 2000 to September 2000

- Implemented a flash driver and timer API utilized in Sony's range of set top boxes.

TECHNICAL SKILLS

MATLAB experience: linear algebra, Fourier transforms, nonlinear numerical methods, polynomials, statistics, visualization. Knowledge of optimization and PDE toolboxes.

MAPLE experience: simplification and rearrangement of PDEs for finite element analysis.

Programming: C, C++, Fortran, PHP, UNIX shell scripting, SPICE, SQL, assembly (Z80 and 68K). Libraries: OpenGL, QT, MFC.

Applications: \LaTeX , \LaTeX , \LaTeX , Microsoft Office.

REFERENCES

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