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Samuel Sinayoko

Research Experience

Oct 2013–Present	**University of Southampton** Brunel Research Fellow, Royal Commission for the Exhibition of 1851, ISVR Acoustic energy in turbulent flows
Jun 2011–Sep 2013	**University of Cambridge** Research Associate, Department of Engineering Identified and fixed long standing error in trailing edge noise theory [2]
Oct 2010–May 2011	**University of Southampton** Research Associate, ISVR (self-funded under EPSRC Doctoral Prize) Separated acoustics from hydrodynamics in a turbulent jet [1, 7]
Sep 2005–Aug 2006	**Peugeot Citroen S.A.**, Vélizy, France, Research intern, Fluid Mechanics and Aeroacoustics Research Experimental (PIV) and numerical (Lattice Boltzmann) investigation of side mirrors

Education

Oct 2007–Sep 2010	**PhD in Aeroacoustics** University of Southampton, ISVR, UK Created new aeroacoustic theory [4]. Identified sound sources in laminar jet [3]
Sep 2003–Sep 2007	**MSc in Sound and Vibration – MEng in Mechanical Engineering** Double degree
Sep 2006–Sep 2007	MSc, University of Southampton, ISVR, UK (distinction) Dissertation: derived multi-mode directivity from ducts with flow [5]
Sep 2003–Sep 2007	MEng, École des Ponts ParisTech, France
Sep 2000–Jun 2003	**Classes Préparatoires aux Grandes Écoles** Maths and Physics training, lycée Louis-le-Grand, Paris, France

Awards

Oct 2013 – Oct 2016	**The 2013 Brunel Fellowship** Royal Commission for the Exhibition of 1851 Awarded 3 year research grant to work on acoustic energy in turbulent flows.
Oct 2012 – Oct 2014	**College Research Associate Membership** Emmanuel College College affiliation for 2 years.
Sep 2010 – Sep 2011	**EPSRC Doctoral Prize** Engineering and Physical Sciences Research Council (EPSRC) Awarded one year research grant to extend PhD work to turbulent jets
June 2010	**Best Student Presentation** Council of European Aerospace Societies (CEAS) 16th AIAA/CEAS Aeroacoustics Conference, Stockholm

Teaching

Sep 2013 – Jan 2014	Python programming (First year) University of Southampton
Feb 2013 – May 2013	Thermofluids (First year) Emmanuel College, Cambridge
Oct 2011 – May 2012	Mathematical methods for Engineers (First year) Emmanuel College, Cambridge
Sep 2008 – Feb 2009	Mathematics for Engineers (First year) School of Mathematics, University of Southampton

Computer Systems and Software

Programming languages	Python, Matlab, Fortran 90/95, C++
Scientific programming	Numpy, Scipy, f2py, OpenMP, MPI, SAGE, Mathematica
Productivity suite	Emacs, LaTeX, Beamer, Mendeley, Zotero, Asymptote
Platforms	Linux, Mac OS X, MS-Windows

Invited Talks / Lectures

22 November 2013	University of Cambridge, UK Fluids Seminar, Department of Engineering, Division A *From noise in jets & wind turbines to relativity*
31 March 2011	Ecole Centrale Lyon, France Centre Acoustique, Laboratoire de Mecaniques des Fluides et d'Acoustique *Decomposition de l'écoulement et sources aeroacoustiques*
24 March 2011	Institut P', Poitiers, France Fluides, Thermique et Combustion *Computing the physical sources of sound in a laminar jet*
October 2010	University of Cambridge, Cambridge, UK Department of Applied Mathematics and Theoretical Physics *Flow decomposition and aerodynamic noise generation*

Publications

Journals

[1] S. Mancini, R.J. Astley, S. Sinayoko, G. Gabard, and M. Tournour. An integral formulation for wave propagation on weakly non-uniform potential flows. *Submitted to Journal of the Acoustical Society of America*, **2015**. ArXiv: 1509.06426.

[2] B. Lyu, M. Azarpeyvand, and S. Sinayoko. Prediction of noise from serrated trailing-edges. *To be published in Journal of Fluid Mechanics*, **2015**. ArXiv: 1508.02276.

[3] A. L. Gregory, S. Sinayoko, A. Agarwal, and J. Lasenby. An acoustic space-time and the Lorentz transformation in aeroacoustics. *Accepted for publication in International Journal of Aeroacoustics*, vol. 14(7), **2015**. ArXiv: 1403.7511.

[4] Y. B. Baqui, A. Agarwal, A. V. Cavalieri, and S. Sinayoko. A coherence-matched linear source mechanism for subsonic jet noise. *Journal of Fluid Mechanics*, 776:235–267, **2015**.

[5] A. Agarwal, S. Sinayoko, and R. Sandberg. On wavenumber spectra for sound within subsonic jets. *Journal of the Acoustical Society of America*, 136:1029–1035, **2014**.

[6] S. Sinayoko, M. Kingan, and A. Agarwal. Trailing edge noise theory for rotating blades in uniform flow. *Proceedings of the Royal Society A*, vol. 469 no. 2157, **2013**.

[7] S. Sinayoko and A. Agarwal. The silent base flow and the sound sources in a laminar jet. *Journal of the Acoustical Society of America*, 131:1959–1968, **2012**.

[8] S. Sinayoko, A. Agarwal, and Z. Hu. Flow decomposition and aerodynamic noise generation. *Journal of Fluid Mechanics*, 668:335–350, **2011**.

[9] S. Sinayoko, P. F. Joseph, and A. McAlpine. Multimode radiation from an unflanged, semi-infinite circular duct with uniform flow. *Journal of the Acoustical Society of America*, 127(4):2159–2168, **2010**.

Conferences and workshops

[10] A. Gregory, A. Agarwal, J. L. Lasenby, and S. Sinayoko. Geometric algebra and an acoustic space time for propagation in non-uniform flow. In *22nd International Congress on Sound and Vibration (ICSV), Florence, Italy, 15–19 July 2015*. **2015**.

[11] B. Lyu, M. Azarpeyvand, and S. Sinayoko. A trailing-edge noise model for serrated edges. In *21th AIAA/CEAS Aeroacoustics Conference, Aviation 2015, Dallas, USA, 22–26 June 2015*. **2015**. AIAA paper 2015–2362.

[12] S. Mancini, R. J. Astley, G. Gabard, S. Sinayoko, and M. Tournour. A combined fem/radiating-surface approach for noise propagation in unbounded domains with mean flow. In *22nd International Congress on Sound and Vibration (ICSV), Florence, Italy, 15–19 July 2015*. **2015**.

[13] S. Mancini, R. J. Astley, G. Gabard, S. Sinayoko, and M. Tournour. A quasi-potential flow formulation for the prediction of the effect of the circulation on the acoustic shielding from a lifting body by means. In *Euronoise 2015, 01–03 June 2015, Maastricht, Netherlands*. **2015**.

[14] S. Sinayoko. Broadband noise for rotating blades: analysis of acceleration effects in the time and frequency domains. In *21th AIAA/CEAS Aeroacoustics Conference, Aviation 2015, Dallas, USA, 22–26 June 2015*. **2015**. AIAA paper 2015–2983.

[15] S. Sinayoko and J. Hurault. Efficient prediction of wind turbine noise in the frequency domain using amiet's theory. In *6th International Conferences on Wind Turbine Noise 2015, Glasgow, UK, 20–23 April 2015*. **2015**.

[16] S. Sinayoko, M. C. M. Wright, and R. D. Sandberg. A Generalised Ffowcs-Williams And Hawkings Formulation Applied To Flow Simulations With VortiCal Outflow. In *22nd International Congress on Sound and Vibration (ICSV), Florence, Italy, 15–19 July 2015*. **2015**.

[17] S. Sinayoko, M. Azarpeyvand, and B. Lyu. Trailing edge noise prediction for rotating serrated blades. In *20th AIAA/CEAS Aeroacoustics Conference, Aviation 2014, Atlanta, USA, 16–20 June 2014*. **2014**. AIAA paper 2014–3296.

[18] Y. Bin Baqui, A. Agarwal, A. Cavalieri, and S. Sinayoko. Nonlinear and linear noise source mechanisms in subsonic jets. In *19th AIAA/CEAS Aeroacoustics Conference, Berlin, Germany, 27–29 May 2013*. **2013**. AIAA paper 2013-2087.

[19] S. Sinayoko and A. Agarwal. A comparison of the silent base flow and vortex sound analogy sources in high speed subsonic jets. In *19th AIAA/CEAS Aeroacoustics Conference, Berlin, Germany, 27–29 May 2013*. **2013**. AIAA paper 2013-2086.

[20] S. Sinayoko, M. Kingan, and A. Agarwal. On the effect of acceleration on trailing edge noise from rotating blades. In *19th AIAA/CEAS Aeroacoustics Conference, Berlin, Germany, 27–29 May 2013*. **2013**. AIAA paper 2013-2287.

[21] S. Sinayoko, M. Kingan, and A. Agarwal. Trailing edge noise prediction for rotating blades: analysis and comparison of two classical approaches. In *18th AIAA/CEAS Aeroacoustics Conference, Colorado Springs, USA, 4–6 June 2012*. **2012**. AIAA paper 2012-2302.

[22] S. Sinayoko, A. Agarwal, and R. Sandberg. Physical sources of sound in laminar and turbulent jets. In *17th AIAA/CEAS Aeroacoustics Conference, Portland, USA, 5–8 June 2011*. **2011**. AIAA paper 2011–2916.

[23] S. Sinayoko and A. Agarwal. On computing the physical sources of jet noise. In *16th AIAA/CEAS Aeroacoustics Conference, Stockholm, Sweden, 7–9 June 2010*. **2010**. AIAA paper 2010–3962.

[24] S. Sinayoko, A. Agarwal, and Z. Hu. On separating propagating and non-propagating dynamics in fluid-flow equations. In *15th AIAA/CEAS Aeroacoustics Conference, Miami, USA, 11–13 May 2009*. **2009**. AIAA paper 2009–3381.

[25] A. Agarwal, G. Gabard, and S. Sinayoko. On the separation of hydrodynamic and acoustic waves in linear free-shear flows. In *Acoustics '08, June 29–July 4, Paris*. **2008**.

[26] A. Agarwal, G. Gabard, S. Sinayoko, and Z. Hu. On separating propagating and non-propagating dynamics in fluid-flow equations. In *ERCOFTAC workshop on Noise Source Mechanisms in Turbulent Shear Flows*. **2008**.

[27] S. Sinayoko, P. F. Joseph, and A. McAlpine. High frequency multimode radiation from ducts with flow. In *14th AIAA/CEAS Aeroacoustics Conference, Vancouver, Canada, 5–7 May 2008*. **2008**. AIAA paper 2008–2831.

References

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