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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, L ^A T _E X, 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 <i>From noise in jets & wind turbines to relativity</i>
31 March 2011	Ecole Centrale Lyon, France Centre Acoustique, Laboratoire de Mecaniques des Fluides et d'Acoustique <i>Decomposition de l'écoulement et sources aeroacoustiques</i>
24 March 2011	Institut P', Poitiers, France Fluides, Thermique et Combustion <i>Computing the physical sources of sound in a laminar jet</i>
October 2010	University of Cambridge, Cambridge, UK Department of Applied Mathematics and Theoretical Physics <i>Flow decomposition and aerodynamic noise generation</i>

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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