

## SUMMARY

Bojan Vukasinovic is a Research Faculty in the George W. Woodruff School of Mechanical Engineering at Georgia Institute of Technology, where he began his work in 2003. He obtained his Ph.D. at Georgia Tech in 2002 and was a Post-Doc Scientist at Microcoating Technologies in 2002 before joining Georgia Tech School of Mechanical Engineering. Prior to his graduate research work at Georgia Tech, he obtained his MS and BS degrees at University of Belgrade in 1996 and 1992, respectively.

Dr. Vukasinovic's primary research interest is in the area of control of turbulent shear flows, with particular emphasis on enhancement of mixing processes and thrust vectoring, distortion control in internal flows, separation control, and on suppression of optical aberrations in separated flows. An important aspect of his work has been the application of various diagnostics tools in complex flow geometries and development of novel control tools for the small-scale flow manipulation (e.g., synthetic jets and fluidic oscillators), that couple to both small- and large-scale flow responses. His work has been supported by the Air Force Research Laboratories, NASA, Army Research Office, Office of Naval Research, and The Boeing Company. Dr. Vukasinovic led Georgia Tech teams in collaborative experimental investigations at the US Air Force Academy (2004), Wright-Patterson AFB (2006, 2007, 2008, and 2011), University of Notre Dame (2004, 2010, and 2011), and The Boeing Company (2013).

Since joining the ME Department as a Research Faculty, Dr. Vukasinovic has published thirteen peer-reviewed journal articles and twenty seven papers in conference proceedings. In addition, his work has been also presented at twelve conferences, three workshops and one webinar.

Dr. Vukasinovic took an instrumental part in developing and establishing the two branched-out fields of research at the ME Department: (i) novel flow control approaches and their applications for mitigation of the aero-optics aberrations over airborne platforms, as well as in (ii) suppression of the flow separation and secondary flows in internal compressible flows. He also led a major scale-up effort aimed at transition of laboratory-scale flow control actuators to the full-scale application actuators that were validated in tests at the Wright-Patterson AFB and Boeing. His contributions to the field were recognized by The Boeing Company, as he is a recipient of the Pride@Boing awards in 2009 and 2011.

Dr. Vukasinovic co-authored eight project proposals, having his role progressing from Task Leader to Co-Principal Investigator and Principal Investigator. He was a Co-Principal investigator of the two projects concluded in 2009 and 2011, and he is currently a Co-Principal investigator of one research project. He was also a Principal Investigator of one project concluded in 2012, and he is a Principal Investigator of one current project. He has authored and co-authored seven final project reports, over fifteen annual project reports and presentations to the sponsors, and dozens of interim reports, presentations and tours of the Fluid Mechanics Research Laboratories to the groups of visitors from both academia and industry.

Dr. Vukasinovic has supervised two students that graduated with Master's degrees, and he currently co-mentors three Ph.D. students. Each of the years at Georgia Tech, he taught two courses, ME3340 and ME6622, as a substitute lecturer, and he served on the two Master's and five Ph.D. Thesis committees. He has also served as manuscript reviewer for ten technical journals, including Physics of Fluids, Langmuir, Experiments in Fluids, and AIAA Journal.

## VITA

**Bojan Vukasinovic, Ph.D.**  
**Research Faculty: Research Engineer II**  
**Fluid Mechanics Research Laboratory, Georgia Tech ME Dept**  
**<http://bvukasinovic.gatech.edu>**

### EDUCATIONAL BACKGROUND:

Degree	Year	University	Field
Ph.D	2002	Georgia Tech	Thermal Sciences
MS	1996	University of Belgrade	Fluid Mechanics
BS	1992	University of Belgrade	Mechanical Engineering

### EMPLOYMENT HISTORY:

Title	Organization	Years
Research Engineer II	Georgia Tech, ME Dept	2003-present
Post-Doc Scientist	Microcoating Technologies	2002-2003
Graduate Research Assistant	Georgia Tech, ME Dept	1996-2002
Research and Teaching Assistant	University of Belgrade, ME Dept	1992-1996

### CURRENT FIELDS OF INTEREST:

**Novel approaches in active and hybrid flow control applications, development and scale-up of the flow control actuators, flow diagnostics techniques, and implementation of the flow control strategies in thermal sciences.**

### Awards

- 2011 Pride@Boeing Award, Boeing Recognition Program, for “outstanding performance and invaluable contributions to the Boeing AFC thrust reverser project”.
- 2009 Pride@Boeing Award, Boeing Recognition Program, for “continuously exceeding goals of the AFRL DEBI-BATL program”.
- 2001 American Physical Society, Division of Fluid Dynamics, Awarded poster presentation at the 54th APS/DFD Gallery of Fluid Motion (*Phys. Fluids*, Vol. 14, S6, 2002).
- 2001 SAIC/Georgia Tech student paper competition. Winning research paper.
- 2000 American Physical Society, Division of Fluid Dynamics, Awarded poster presentation at the 53rd APS/DFD Gallery of Fluid Motion (*Phys. Fluids*, Vol. 13, S14, 2001).
- 1999 American Physical Society, Division of Fluid Dynamics, 1999, Awarded poster presentation at the 52nd APS/DFD Gallery of Fluid Motion (*Phys. Fluids*, Vol. 12, S12, 2000).

### Recognition

- Published an invited paper in the Flow Control special issue of *Experiments in Fluids*.
- Presented overall accomplishments at three workshops and a webinar.
- Served as a manuscript reviewer for over ten journals.

Ph.D. thesis work featured in: *A Gallery of Fluid Motion, Cambridge University Press, 2003*, *Science Year 2001, World Book Publishing*, and *Physics News, American Institute of Physics, 2000*.

### Managed Projects

1.	Title:	Advanced Flow Control and Modeling/Prediction Technologies for Efficient Integration of Offset Diffusers in Supersonic Inlets
	Sponsor:	Office of Naval Research
	Role:	Co-Principal Investigator
	Period of Performance:	10/13 – 9/16
2.	Title:	Aero-Optical Flow Control For Mitigation Of Shock Effects In Airborne Applications
	Sponsor:	Air Force Research Laboratory
	Role:	Principal Investigator
	Period of Performance:	12/12 – 11/14
3.	Title:	Aero-Optical Flow Control for Mitigation Of Shock Effects in Airborne Application
	Sponsor:	Air Force Research Laboratory
	Role:	Principal Investigator
	Period of Performance:	1/1/12 – 08/31/12
4.	Title:	Propulsion Applications for Active Flow Control
	Sponsor:	The Boeing Company
	Role:	Task Leader
	Period of Performance:	10/08-12/14
5.	Title:	Unsteady Aerodynamic Flow Control of Moving Platforms
	Sponsor:	Army Research Office
	Role:	Task Leader
	Period of Performance:	10/10 – 9/13
6.	Title:	Inlet Flow Control and Prediction Technologies for Embedded Propulsion Systems
	Sponsor:	NASA
	Role:	Task Leader
	Period of Performance:	09/2007 – 09/2010
7.	Title:	Directed Energy Beam Improvement by Expanding the Field of Regard (DEBI-XFR)
	Sponsor:	Air Force Research Laboratory /The Boeing Company
	Role:	Co-Principal Investigator and Task Leader
	Period of Performance:	5/08 – 12/11
8.	Title:	Fluidic Actuation and Control of Munitions Aerodynamics
	Sponsor:	Army Research Office

	Role:	Task Leader
	Period of Performance:	9/06 – 8/09
9.	Title:	Directed Energy Beam Improvement-Binary Control for Advanced Tactical Laser (DEBI-BATL)
	Sponsor:	The Boeing Company
	Role:	Co-Principal Investigator and Task Leader
	Period of Performance:	6/06 – 10/09
10.	Title:	Directed Energy Beam Improvement using Flow Excitation
	Sponsor:	Air Force Research Laboratory
	Role:	Task Leader
	Period of Performance:	7/1/02 – 6/05
11.	Title:	Direct Excitation of Small-Scale Motions in Free Shear Flows
	Sponsor:	Air Force Research Laboratory /The Boeing Company
	Role:	Task Leader
	Period of Performance:	11/2003 – 10/2006

## PUBLICATIONS

### A. Journal Papers

1. Vukasinovic, B., Glezer, A., Gordeyev, S., Jumper, E., and Bower, W. W., “Flow Control for Aero-Optics Application,” *Exp. Fluids*, Vol. 54, art. 1492, March 2013.
2. Vukasinovic, B., Glezer, A., Gordeyev, S., Jumper, E., and Kibens, V., “Hybrid Control of a Turret Wake”, *AIAA J.*, Vol. 49, no. 6, pp.1240-1255, June 2011.
3. Vukasinovic, B., Glezer, A., Gordeyev, S., Jumper, E., and Kibens, V., “Fluidic Control of a Turret Wake: Aerodynamic and Aero-Optical Effects”, *AIAA J.*, Vol. 48, no. 8, pp.1686-1699, August 2010.
4. Abramson, P., Vukasinovic, B., and Glezer, A., “Fluidic Control of Aerodynamic Forces on a Bluff Body of Revolution”, *AIAA J.*, Vol. 50, no. 4, pp.832-843, April 2012.
5. Abramson, P., Vukasinovic, B., and Glezer, A., Direct Measurements of Controlled Aerodynamic Forces on a Wire-suspended Axisymmetric Body, *Exp. Fluids*, Vol. 50, no. 6, pp. 1711-1725, June 2011.
6. Vukasinovic, B., Rusak, Z., and Glezer, A., “Dissipative Small-scale Actuation of a Turbulent Shear Layer”, *J. Fluid Mech.*, Vol. 656, pp. 51-81, August 2010.
7. Vukasinovic, B., Brzozowski, D., and Glezer, A., “Fluidic Control of Separation Over a Hemispherical Turret”, *AIAA J.*, Vol. 47, no. 9, pp.2212-2222, September 2009.
8. Vukasinovic, B., Smith, M. K., and Glezer, A., “Dynamics of a Sessile Drop in Forced Vibration”, *J. Fluid Mech.*, Vol. 587, pp.395-423, September 2007.
9. Vukasinovic, B., Smith, M.K., and Glezer, A., “Mechanisms of Free-Surface Breakup in Vibration-Induced Liquid Atomization”, *Phys. Fluids*, Vol. 19, no. 1, art. 012104, January 2007.

10. Vukasinovic, B., Smith, M.K., and Glezer, A., "Spray Characterization During Vibration-induced Drop Atomization", *Phys. Fluids*, Vol. 16, no. 2, pp. 306-316, February 2004.
11. Maric, R., Oljaca, M., Vukasinovic, B., and Hunt, A. T., "Synthesis of Oxide Nanopowders in NanoSpray<sup>SM</sup> Diffusion Flames", *Mater. Manuf. Process.*, Vol. 19, pp. 1143-1156, 2004.
12. James, A. J., Vukasinovic, B., Smith, M. K., and Glezer, A., "Vibration-induced Drop Atomization and Bursting", *J. Fluid Mech.*, Vol. 476, pp.1-28, February 2003.
13. Vukasinovic, B., Sundell, S., and Oljaca, M., "Closed Loop Controlled Deposition of BaxSr1-xTiO3 Thin Films in Spray Flames", *Surf. Eng.*, Vol. 19, pp. 179-184, 2003.

## B. Conference Proceedings

1. Gissen, A. N., Vukasinovic, B., Glezer, A., Gogineni, S., Paul, M.C., and Wittich, D.J., "Active Transonic Shock Control", AIAA Paper 2014-0942, 2014.
2. Lambert, T.J., Vukasinovic, B., and Glezer, A., "Aerodynamic Flow Control of a Moving Axisymmetric Bluff Body", AIAA Paper 2014-0932, 2014.
3. Gissen, A. N., Vukasinovic, B., Glezer, A., and Gogineni, S., "Active Shock Control in a Transonic Flow", AIAA Paper 2013-3116, 2013.
4. Vukasinovic, B., Gissen, A. N., Glezer, A., and Gogineni, S., "Fluidic Control of Transonic Shock-Induced Separation", AIAA Paper 2013-0529, 2013.
5. Vukasinovic, B., Glezer, A., Gordeyev, S., Jumper, E., and Bower, W. W., "Flow Control for Turret Aero-Optics Applications", AIAA Paper 2013-1014, 2013.
6. Lambert, T.J., Vukasinovic, B., and Glezer, A., "Yaw Control of a Moving Axisymmetric Body using Synthetic Jets", AIAA Paper 2013-0106, 2013.
7. Lambert, T.J., Vukasinovic, B., and Glezer, A., "Unsteady Aerodynamic Flow Control of a Wire-Suspended, Moving Axisymmetric Body", AIAA Paper 2012-0073, 2012.
8. Gissen, A. N., Vukasinovic, B., McMillan, M. L., and Glezer, A., "Dynamics of Hybrid Flow Control in a Boundary-Layer-Ingesting Offset Diffuser", AIAA Paper 2011-3096, 2011.
9. Gissen, A. N., Vukasinovic, B., McMillan, M. L., and Glezer, A., "Distortion Management in a BLI Inlet Diffuser using Synthetic-Jet Hybrid Flow Control", AIAA Paper 2011-35, 2011.
10. Gissen, A. N., Vukasinovic, B., and Glezer, A., "Manipulation of Streamwise Vorticity in an Emulated Diffuser Boundary Layer Using Hybrid Flow Control", AIAA Paper 2010-4586, 2010.
11. Vukasinovic, B., Glezer, A., Gordeyev, S., Jumper, E., and Kibens, V., "Hybrid Control of a Turret Wake, Part I: Aerodynamic Effects", AIAA Paper 2010-86, 2010.
12. Gordeyev, S., Jumper, E., Vukasinovic, B., Glezer, A., and Kibens, V., "Hybrid Control of a Turret Wake, Part II: Aero-Optical Effects", AIAA Paper 2010-438, 2010.
13. Gissen, A. N., Vukasinovic, B., and Glezer, A., "Controlled Streamwise Vorticity in Diffuser Boundary Layer using Hybrid Synthetic Jet Actuation", AIAA Paper 2009-4021, 2009.
14. Vukasinovic, B., Glezer, A., Gordeyev, S., Jumper, E., and Kibens, V., "Fluidic Control of a Turret Wake, Part I: Aerodynamic Effects", AIAA Paper 2009-816, 2009.
15. Gordeyev, S., Jumper, E., Vukasinovic, B., Glezer, A., and Kibens, V., "Fluidic Control of a Turret Wake, Part II: Aero-Optical Effects", AIAA Paper 2009-817, 2009.

16. Bower, W. W., Kibens, V., Nahrstedt, D. A., Vukasinovic, B., Glezer, A., Gordeyev, S., Jumper, E., and Saunders, D., "Directed Energy Beam Improvement Using Binary Control for the Advanced Tactical Laser (DEBI-BATL)", Proc. Beam Control Conference 2009, Monterey, CA, April 6-10, 2009.
17. Abramson, P., Vukasinovic, B., and Glezer, A., "Fluidic Control of Steering Aerodynamic Forces on Axisymmetric Bodies using a Mid-Body Cavity", AIAA Paper 2009-4276, 2009.
18. Vukasinovic, B., Glezer, A., Gordeyev, S., Jumper, E., and Kibens, V., "Active Control and Optical Diagnostics of the Flow over a Hemispherical Turret", AIAA Paper 2008-598, 2008.
19. Abramson, P., Culp, J., Vukasinovic, B., and Glezer, A., "Fluidic Control of Asymmetric Forces on a Body of Revolution", AIAA Paper 2009-1078, 2009.
20. Vukasinovic, B. and Glezer, A., "Control of a Separating Flow over a Turret", AIAA Paper 2007-4506, 2007.
21. Vukasinovic, B., Glezer, A., and Rusak, Z., "Experimental and Numerical Investigation of Controlled, Small-Scale Motions in a Turbulent Shear Layer", Proc. 3<sup>rd</sup> International Symposium on Integrating CFD and Experiments, USAFA, June 20-21, 2007.
22. Abramson, P., Rinehart, C., Vukasinovic, B., and Glezer, A., "Fluidic Control of Aerodynamic Forces on a Body of Revolution", AIAA Paper 2007-4505, 2007.
23. Vukasinovic, B. and Glezer, A., "Transitory Fluidic Control of Turbulent Shear Flows", AIAA Paper 2006-3227, 2006.
24. Vukasinovic, B., Brzozowski, D., Glezer, A., Bower, W. W., and Kibens, V., "Separation Control over a Surface-Mounted Hemispherical Shell", AIAA Paper 2005-4878, 2005.
25. Vukasinovic, B., Lucas, D. G., and Glezer, A., "Controlled Manipulation of Small- and Large-Scales in a Turbulent Shear Layer, Part I: Experimental Studies", AIAA Paper 2005-4753, 2005.
26. Vukasinovic, B., Lucas, D. G., and Glezer, A., "Direct Manipulation of Small-Scale Motions in a Plane Shear Layer", AIAA Paper 2004-2617, 2004.
27. Oljaca, M., Vukasinovic, B., Bukovski, A., and Lieuwen, T., "Monitoring of Acoustic Signal from a Spray Diffusion Flame", AIAA Paper 2003-3185, 2003.
28. Garg, J., Arik, M., Bar-Cohen, A., Wolf, R., Vukasinovic, B., Hartley, J.G., and Glezer, A., "Synthetic Jet Enhancement of Natural Convection and Pool Boiling in a Dielectric Liquid", Proc. 12<sup>th</sup> IHTC, 2002.
29. Vukasinovic, B., Heffington, S. N., Smith, M. K., and Glezer, A., "Vibration-induced Droplet Atomization (VIDA) for Two-Phase Thermal Management", Proc. of IMECE 2001, pp. 2079-2086, 2001.
30. Smith, M. K., James, A., Vukasinovic, B., and Glezer, A., "Vibration-induced Droplet Atomization", Proc. 4<sup>th</sup> Microgravity Fluid Physics and Transport Phenomena Conference, pp. 447-452, 1998.
31. Oka, S., Komatina, M., Ilic, M., Grubor, B., and Vukasinovic, B., "Heat and Mass Transfer of Active Coarse Particle in Fluidized Bed", Heat and mass Transfer Forum 5, pp. 23-32, 1995.
32. Oka, S., Vukasinovic, B., Komatina, M., and Ilic, M., "Experimental Investigation of Mass Transfer Between Single Active Particle and Bubbling Fluidized Bed", Proc. 13<sup>th</sup> Int. FBC Conference 2, pp. 1419-1425, 1995.