

List of Publications (Olaf Marxen)

[January 10, 2013]

Archival Journal Publications

1. **O. MARXEN**, M. LANG, U. RIST (2012) “Discrete linear local eigenmodes in a forced laminar separation bubble”. *J. Fluid Mech.* **711**: 1–26 ([doi: 10.1017/jfm.2012.263](https://doi.org/10.1017/jfm.2012.263)) [PDF \(1.47 MB\)](#)
2. **O. MARXEN**, T. MAGIN, G. IACCARINO, E.S.G. SHAQFEH (2011) “A high-order numerical method to study hypersonic boundary-layer instability including high-temperature gas effects”. *Phys. Fluids* **23**, 084108 ([doi: 10.1063/1.3614526](https://doi.org/10.1063/1.3614526)) [PDF \(1.7 MB\)](#)
3. **O. MARXEN**, D.S. HENNINGSON (2011) “The effect of small-amplitude convective disturbances on the size and bursting of a laminar separation bubble”. *J. Fluid Mech.* **671**: 1–33 ([doi: 10.1017/S0022112010004957](https://doi.org/10.1017/S0022112010004957)) [PDF \(2.2 MB\)](#)
4. **O. MARXEN**, U. RIST (2010) “Mean flow deformation in a laminar separation bubble: separation and stability characteristics”. *J. Fluid Mech.* **660**: 37–54 ([doi: 10.1017/S0022112010001047](https://doi.org/10.1017/S0022112010001047)) [PDF \(496 KB\)](#)
5. R. KOTAPATI, R. MITTAL, **O. MARXEN**, F. HAM, D. YOU, L.N. CATTAFESTA III (2010) “Non-linear dynamics and synthetic jet based control of a canonical separated flow”. *J. Fluid Mech.* **654**: 65–97 ([doi: 10.1017/S002211201000042X](https://doi.org/10.1017/S002211201000042X)) [PDF \(1.5 MB\)](#)
6. **O. MARXEN**, G. IACCARINO, E.S.G. SHAQFEH (2010) “Disturbance evolution in a Mach 4.8 boundary layer with two-dimensional roughness-induced separation and shock”. *J. Fluid Mech.* **648**: 435–469 ([doi: 10.1017/S0022112009992758](https://doi.org/10.1017/S0022112009992758)) [PDF \(797 KB\)](#)
7. **O. MARXEN**, M. LANG, U. RIST, O. LEVIN, D.S. HENNINGSON (2009) “Mechanisms for spatial steady three-dimensional disturbance growth in a non-parallel and separating boundary layer”. *J. Fluid Mech.* **634**: 165–189 ([doi: 10.1017/S0022112009007149](https://doi.org/10.1017/S0022112009007149)) [PDF \(801 KB\)](#)
8. S.R. TIYYAGURA, P. ADAMIDIS, R. RABENSEIFNER, P. LAMMERS, S. BOROWSKI, F. LIPPOLD, F. SVENSSON, **O. MARXEN**, S. HABERHAUER, A.P. SEITSONEN, J. FURTHMÜLLER, K. BENKERT, M. GALLE, T. BÖNISCH, U. KÜSTER, M.M. RESCH (2008) “Teraflops sustained performance with real world applications”. *International Journal of High Performance Computing Applications* **22** (2): 131–148 ([doi: 10.1177/1094342007085017](https://doi.org/10.1177/1094342007085017)) [PDF \(2.6 MB\)](#)
9. E. Åkervik, L. Brandt, D.S. Henningson, J. Hoepffner, **O. Marxen**, P. Schlatter (2006) “Steady solutions of the Navier-Stokes equations by selective frequency damping”. *Phys. Fluids* **18**, 068102 ([doi: 10.1063/1.2211705](https://doi.org/10.1063/1.2211705)) [PDF \(98 KB\)](#)
10. **O. MARXEN**, U. RIST, S. WAGNER (2004) “Effect of spanwise-modulated disturbances on transition in a separated boundary layer”. *AIAA Journal* **42** (5): 937–944 ([doi: 10.2514/1.565](https://doi.org/10.2514/1.565)) [PDF \(475 KB\)](#)
11. **O. MARXEN**, M. LANG, U. RIST, S. WAGNER (2003) “A combined experimental/numerical study of unsteady phenomena in a laminar separation bubble”. *Flow, Turbulence and Combustion* **71**: 133–146 ([doi: 10.1023/B:APPL.0000014928.69394.50](https://doi.org/10.1023/B:APPL.0000014928.69394.50)) [PDF \(301.5 KB\)](#)

Book Chapters

1. **O. MARXEN**, G. IACCARINO, E.S.G. SHAQFEH (2010) “Linear and non-linear disturbance evolution in a compressible boundary-layer with localized roughness”. In *Seventh IUTAM Symposium on Laminar-Turbulent Transition* (ed. P. Schlatter & D. Henningson), IUTAM Bookseries, vol. 18. Proceedings of the Seventh IUTAM Symposium on Laminar-Turbulent Transition, Stockholm, Sweden, 2009, Springer Netherlands, pp. 271–276 ([doi: 10.1007/978-90-481-3723-7_43](https://doi.org/10.1007/978-90-481-3723-7_43)) [PDF \(445 KB\)](#)
2. G. GROSOPF, M.J. KLOKER, **O. MARXEN** (2010) “Bi-global crossplane stability analysis of high-speed boundary-layer flows with discrete roughness” In *Seventh IUTAM Symposium on Laminar-Turbulent Transition* (ed. P. Schlatter & D. Henningson), IUTAM Bookseries, vol. 18. Proceedings of the Seventh IUTAM Symposium on Laminar-Turbulent Transition, Stockholm, Sweden, 2009, Springer Netherlands, pp. 171–176 ([doi: 10.1007/978-90-481-3723-7_26](https://doi.org/10.1007/978-90-481-3723-7_26)) [PDF \(2.0 MB\)](#)
3. **O. MARXEN** (2008) “Laminar-turbulent transition in a laminar separation bubble: Influence of disturbance amplitude on bubble size and bursting”, In *High Performance Computing in Science and Engineering '07* (ed. W. E. Nagel, D. Kröner & M. Resch), Transactions of the High Performance Computing Center Stuttgart (HLRS) 2007, Springer, Berlin, pp. 261–275 ([doi: 10.1007/978-3-540-74739-0_18](https://doi.org/10.1007/978-3-540-74739-0_18)) [PDF \(1.2 MB\)](#)
4. **O. MARXEN**, D.S. HENNINGSON (2008) “Direct numerical simulation of a short laminar separation bubble and

- early stages of the bursting process”. In *New Results in Numerical and Experimental Fluid Mechanics VI* (ed. C. Tropea, S. Jakirlic, H.-J. Heinemann, R. Henke & H. Hönlinger), Notes on Numerical Fluid Mechanics and Multidisciplinary Design (NNFM), vol. 96. Contributions to the 15th STAB/DGLR Symposium Darmstadt, Germany 2006, Nov. 29 – Dec. 1, Springer, Heidelberg, pp. 235–243 ([doi: 10.1007/978-3-540-74460-3_29](https://doi.org/10.1007/978-3-540-74460-3_29)) [PDF \(567 KB\)](#)
5. **O. MARXEN**, D. YOU, P. MOIN (2007) “Numerical Simulations of the Bursting of a Laminar Separation Bubble and its Relation to Airfoil Stall”, In *Advances in Turbulence XI* (ed. J. Palma & A. Silva Lopes), Springer Proceedings Physics, vol. 117. Proceedings of the 11th EUROMECH European Turbulence Conference, June 25–28, 2007 Porto, Portugal, Springer, Berlin, pp. 253–267 ([doi: 10.1007/978-3-540-72604-3_226](https://doi.org/10.1007/978-3-540-72604-3_226)) [PDF \(1.7 MB\)](#)
 6. **O. MARXEN**, D.S. HENNINGSON (2007) “Numerical simulation of the bursting of a laminar separation bubble”, In *High Performance Computing in Science and Engineering '06* (ed. W. E. Nagel, W. Jäger & M. Resch), Transactions of the High Performance Computing Center Stuttgart (HLRS) 2006, Springer, Berlin, pp. 253–267 ([doi: 10.1007/978-3-540-36183-1_18](https://doi.org/10.1007/978-3-540-36183-1_18)) [PDF \(3.2 MB\)](#)
 7. **O. MARXEN**, U. RIST, D.S. HENNINGSON (2006) “Steady three-dimensional streaks and their optimal growth in a laminar separation bubble”. In *New Results in Numerical and Experimental Fluid Mechanics V* (ed. H. J. Rath, C. Holze, H.-J. Heinemann, R. Henke & H. Hönlinger), Notes on Numerical Fluid Mechanics and Multidisciplinary Design (NNFM), vol. 92. Contributions to the 14th STAB/DGLR Symposium Bremen, Germany 2004, Nov. 16–18, Springer, Heidelberg, pp. 149–164 ([doi: 10.1007/978-3-540-33287-9_29](https://doi.org/10.1007/978-3-540-33287-9_29)) [PDF \(935 KB\)](#)
 8. **O. MARXEN**, U. RIST (2006) “Direct numerical simulation of non-linear transitional stages in an experimentally investigated laminar separation bubble”, In *High Performance Computing in Science and Engineering '05* (ed. W. E. Nagel, M. Resch & W. Jäger), Transactions of the High Performance Computing Center Stuttgart (HLRS) 2005, Springer, Berlin, pp. 103–117 ([doi: 10.1007/3-540-29064-8_8](https://doi.org/10.1007/3-540-29064-8_8)) [PDF \(1.1 MB\)](#) [GOLDEN SPIKE AWARD](#)
 9. **O. MARXEN**, U. RIST (2004) “DNS and LES of the transition process in a laminar separation bubble”. In *Direct and Large-Eddy Simulation V* (ed. R. Friedrich, B.J. Geurts & O. Métais), ERCOFTAC Series, vol. 9, Proc. of the 5th Workshop on Direct and Large-Eddy Simulation, Aug. 27–29, 2003, Munich, Germany, Kluwer Academic Publishers, Dordrecht, pp. 231–240 ([ISBN: 978-1-4020-2032-2](https://doi.org/10.1007/978-1-4020-2032-2)) ([Google books](#))
 10. M. LANG, **O. MARXEN**, U. RIST, S. WAGNER (2004) “A combined numerical and experimental investigation of transition in a laminar separation bubble”. In *Recent Results in Laminar-Turbulent Transition* (ed. S. Wagner, M. Kloker & U. Rist), Notes on Numerical Fluid Mechanics and Multidisciplinary Design (NNFM), vol. 86. Selected numerical and experimental contributions from the DFG priority programme “Transition” in Germany, Springer, Heidelberg, pp. 149–164 ([ISBN: 978-3-540-40490-3](https://doi.org/10.1007/978-3-540-40490-3)) ([Google books](#)) [PDF \(541 KB\)](#)
 11. M. LANG, **O. MARXEN**, U. RIST, S. WAGNER (2002) “Experimental and numerical investigations on transition in a laminar separation bubble”. In *New Results in Numerical and Experimental Fluid Mechanics III* (ed. S. Wagner, U. Rist, H.-J. Heinemann & R. Hilbig), Notes on Numerical Fluid Mechanics and Multidisciplinary Design (NNFM), vol. 77, Contributions to the 12. STAB/DGLR Symposium Stuttgart, Germany 2000, Springer, Heidelberg, pp. 207–214 ([doi: 10.1007/978-3-540-45466-3_25](https://doi.org/10.1007/978-3-540-45466-3_25)) ([Google books](#)) [PDF \(1.7 MB\)](#)

Conference Proceedings

1. **O. MARXEN**, T. MAGIN, G. IACCARINO (2012) “Disturbance Evolution in a Mach 4.8 Boundary Layer with Separation”. **FM04-026**, 23rd International Congress of Theoretical and Applied Mechanics (ed. Y. Bai, J. Wang & D. Fang), Aug. 19–24, 2012, Beijing, China, CD-ROM
2. G. SERINO, **O. MARXEN**, F. PINNA, P. RAMBAUD, T. MAGIN (2012) “Transition Prediction for Oblique Breakdown in Supersonic Boundary Layers with Uncertain Disturbance Spectrum”. **AIAA 2012-2973**, 42nd AIAA Fluid Dynamics Conference and Exhibit, June 25–28, 2012, New Orleans, Louisiana, USA ([doi: 10.2514/6.2012-2973](https://doi.org/10.2514/6.2012-2973)) [PDF \(600 KB\)](#)
3. **O. MARXEN**, G. IACCARINO, E.S.G. SHAQFEH (2011) “Numerical simulations of hypersonic boundary-layer instability with localized roughness”. **AIAA 2011-0567**, 49th AIAA Aerospace Sciences Meeting, Jan. 4–7, 2011, Orlando, Florida, USA ([doi: 10.2514/6.2011-567](https://doi.org/10.2514/6.2011-567)) [PDF \(2.3 MB\)](#)
4. **O. MARXEN**, T. MAGIN, G. IACCARINO, E.S.G. SHAQFEH (2010) “Hypersonic Boundary-Layer Instability with Chemical Reactions”. **AIAA 2010-707**, 48th AIAA Aerospace Sciences Meeting, Jan. 4–7, 2010, Orlando, Florida, USA ([aiaa.org/doi: 10.2514/6.2010-707](https://doi.org/10.2514/6.2010-707)) [PDF \(246 KB\)](#)
5. S. GHAFARI, **O. MARXEN**, G. IACCARINO, E.S.G. SHAQFEH (2010) “Numerical Simulations of Hypersonic Boundary-Layer Instability with Wall Blowing”. **AIAA 2010-706**, 48th AIAA Aerospace Sciences Meeting, Jan. 4–7, 2010, Orlando, Florida, USA ([aiaa.org/doi: 10.2514/6.2010-706](https://doi.org/10.2514/6.2010-706)) [PDF \(336 KB\)](#)
6. **O. MARXEN**, G. IACCARINO (2009) “Transitional and turbulent high-speed boundary-layers on surfaces with

- distributed roughness”. **AIAA 2009-171**, 47th AIAA Aerospace Sciences Meeting, Jan. 5-8, 2009, Orlando, Florida, USA ([aiaa.org/doi: 10.2514/6.2009-171](http://aiaa.org/doi:10.2514/6.2009-171)) [PDF \(3.9 MB\)](#)
7. **O. MARXEN**, G. IACCARINO (2008) “Numerical simulation of the effect of a roughness element on high-speed boundary-layer instability”. **AIAA 2008-4400**, 38th Fluid Dynamics Conference and Exhibit, June 23-26, 2008, Seattle, Washington, USA ([doi: 10.2514/6.2008-4400](http://doi:10.2514/6.2008-4400)) [PDF \(692 KB\)](#)
 8. **O. MARXEN**, D.S. HENNINGSON (2007) “Direct numerical simulation of the bursting of a laminar separation bubble and evaluation of flow-control strategies”. IUTAM Symposium on Unsteady Separated Flows and Their Control (ed. M. Braza & K. Hourigan), June 18–22, 2007, Kerkyra (Corfu), Greece, CD-ROM
 9. R. KOTAPATI, R. MITTAL, **O. MARXEN**, F. HAM, D. YOU (2007) “Numerical simulations of synthetic jet based separation control in a canonical separated flow”. **AIAA 2007-1308**, 45th AIAA Aerospace Sciences Meeting and Exhibit, Jan. 8-11, 2007, Reno, Nevada, USA ([aiaa.org/doi: 10.2514/6.2007-1308](http://aiaa.org/doi:10.2514/6.2007-1308)) [PDF \(5 MB\)](#)
 10. **O. MARXEN**, D.S. HENNINGSON (2007) “Numerical simulation of the bursting of a laminar separation bubble”. **AIAA 2007-538**, 45th AIAA Aerospace Sciences Meeting and Exhibit, Jan. 8-11, 2007, Reno, Nevada, USA ([aiaa.org/doi: 10.2514/6.2007-538](http://aiaa.org/doi:10.2514/6.2007-538)) [PDF \(4.5 MB\)](#)
 11. **O. MARXEN**, U. RIST, S. WAGNER (2003) “The effect of spanwise-modulated disturbances on transition in a 2-d separated boundary layer”. **AIAA 2003-789**, 41st AIAA Aerospace Sciences Meeting and Exhibit, Jan. 6-9, 2003, Reno, Nevada, USA ([doi: 10.2514/6.2003-789](http://doi:10.2514/6.2003-789)) [PDF \(614 KB\)](#)
 12. **O. MARXEN**, M. LANG, U. RIST, S. WAGNER (2002) “A combined experimental/numerical study of unsteady phenomena in a laminar separation bubble”. IUTAM Symposium on Unsteady Separated Flows (ed. M. Braza, C. Hirsch & F. Hussain), April 8-12, 2002, Toulouse, France, CD-ROM
 13. M. LANG, **O. MARXEN**, U. RIST, S. WAGNER (2001) “Untersuchungen zur Transition in einer laminaren Ablöseblase mittels LDA, PIV und DNS”. In *Lasermethoden in der Strömungsmesstechnik* (ed. D. Doppeide, Z. Zhang & B. Ruck), 9. Fachtagung der GALA, Sept. 18-20, 2001, Winterthur, Switzerland, Shaker, Aachen
 14. M. LANG, **O. MARXEN**, U. RIST, S. WAGNER, W. WÜRZ (2000) “LDA-Messungen zur Transition in einer laminaren Ablöseblase”. In *Lasermethoden in der Strömungsmesstechnik* (ed. A. Delgado), 8. Fachtagung der GALA, Sept. 12-14, 2000, Freising Weihenstephan, Germany, Shaker, Aachen

Reports and Research Briefs

1. **O. MARXEN**, G. SERINO, F. PINNA, P. CONSTANTINE, G. GORLE, G. IACCARINO (2012). “Statistical inverse analysis and stochastic modeling of transition”, *Proceedings of the Summer Program 2012*, Center for Turbulence Research, Stanford University, pp. 189–198 [PDF \(928 KB\)](#)
2. **O. MARXEN**, G. IACCARINO, E. S. G. SHAQFEH (2010). “A numerical method to simulate hypersonic boundary layers with finite-rate chemistry”, *Annual Research Briefs*, Center for Turbulence Research, Stanford University, pp. 197–208 [PDF \(287 KB\)](#)
3. G. GROSKOPF, M. J. KLOKER, K. A. STEPHANI, **O. MARXEN**, G. IACCARINO (2010). “Hypersonic flows with discrete oblique surface roughness and their stability properties”, *Proceedings of the Summer Program 2010*, Center for Turbulence Research, Stanford University, pp. 405–422 [PDF \(5.6 MB\)](#)
4. F. PINNA, K. BENSASSI, P. RAMBAUD, O. CHAZOT, A. LANI, **O. MARXEN** (2010). “Development of an integrated methodology for the post-flight analysis of the transition payload for the EXPERT mission”, *Proceedings of the Summer Program 2010*, Center for Turbulence Research, Stanford University, pp. 423–432 [PDF \(242 KB\)](#)
5. **O. MARXEN**, G. IACCARINO, E. S. G. SHAQFEH (2009). “Uncertainty quantification for linear and weakly non-linear supersonic boundary-layer instability”, *Annual Research Briefs*, Center for Turbulence Research, Stanford University, pp. 105–116 [PDF \(463 KB\)](#)
6. **O. MARXEN**, G. IACCARINO (2008). “An immersed boundary method for numerical simulations of boundary layers with roughness”, *Annual Research Briefs*, Center for Turbulence Research, Stanford University, pp. 89–100 [PDF \(537 KB\)](#)
7. G. GROSKOPF, M. J. KLOKER, **O. MARXEN** (2008). “Bi-global secondary stability theory for high-speed boundary-layer flows”, *Proceedings of the Summer Program 2008*, Center for Turbulence Research, Stanford University, pp. 55–72 [PDF \(3.8 MB\)](#)
8. P. A. DURBIN, J. W. JOO, **O. MARXEN** (2008). “Boundary layer transition in high-speed flow”, *Proceedings of the Summer Program 2008*, Center for Turbulence Research, Stanford University, pp. 73–82 [PDF \(643 KB\)](#)
9. **O. MARXEN**, G. IACCARINO, E. S. G. SHAQFEH (2007). “Numerical simulation of hypersonic instability using different gas models”, *Annual Research Briefs*, Center for Turbulence Research, Stanford University, pp. 15–27 [PDF \(827 KB\)](#)

10. **O. MARXEN**, R. B. KOTAPATI, D. YOU (2006). “Evaluation of active control of a laminar separation bubble based on linear stability theory”, *Annual Research Briefs*, Center for Turbulence Research, Stanford University, pp. 323–335 [PDF \(344 KB\)](#)
11. R. B. KOTAPATI, R. MITTAL, **O. MARXEN**, D. YOU, V. KITSIOS, A. OOI, J. SORIA (2006). “Harnessing resonant interactions for active control of separated flows”, *Proceedings of the Summer Program 2006*, Center for Turbulence Research, Stanford University, pp. 445–456 [PDF \(7.9 MB\)](#)