



Meet our Research Faculty

Dr. Stavros Christopoulos

Assistant Professor



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Name: Dr. Stavros Christopoulos

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Research Interests

Atomic, molecular and optical Physics: Laser cooling and spectroscopy of ultradense gases

Solid State Physics: Polariton lasing / Polaritonics

Material Physics: Nanostructured optical films

Research Collaborations

University of Bonn, Institut for Applied Physics (IAP) on: Laser cooling of ultradense gases

Cyprus University of Technology (CUT) and University of Cyprus on: Controlling the properties of oxide-based, nano-structured, composite films by using unary and multi-component particle formations

Publications

D.G. Papazoglou, I. Zergioti, S. Tzortzakis, G. Sgouros, G. Maravelias, S. Christopoulos and C. Fotakis. Sub-picosecond ultraviolet laser filamentation-induced bulk modifications in fused silica. *Applied Physics A: Materials Science & Processing*, 81:241, 2005

S. Christopoulos, G. Baldassarri Hoyer von Hoyersthal, A. J. D. Grundy, P. G. Lagoudakis, A. V. Kavokin, J. J. Baumberg, G. Christmann, R. Butte, E. Feltin, J. F. Carlin, N. Grandjean. Room-temperature polariton lasing in semiconductor microcavities. *Physical Review Letters*, 98:126405, 2007

R. Butte, J. F. Carlin, E. Feltin, M. Gonschorek, S. Nicolay, G. Christmann, D. Simeonov, A. Castiglia, J. Dorsaz, H. J. Buehlmann, S. Christopoulos, G. Baldassarri Hoeger von Hoegersthal, A. J. D. Grundy, M. Mosca, C. Pinguier, M. A. Py, F. Demangeot, J. Frandon, P.G. Lagoudakis, J. J. Baumberg, N. Grandjean. Current status of AllN layers lattice-matched to GaN for photonics and electronics. *Journal of Physics D - Applied Physics*, 40:6328, 2007

E. Feltin, G. Christmann, J. Dorsaz, A. Castiglia, J. F. Carlin, R. Butte, N. Grandjean, S. Christopoulos, G. Baldassarri Hoeger von Hoyersthal, A. J. D. Grundy, P. G. Lagoudakis, J. J. Baumberg. Blue lasing at room temperature in an optically pumped lattice-matched AllN/GaN VCSEL structure. *Electronics Letters*, 43:924, 2007

J. J. Baumberg, A. V. Kavokin, S. Christopoulos, A. J. D. Grundy, R. Butte, G. Christmann, D. D. Solnyshkov, G. Malpuech, G. Baldassarri Hoyer von Hoyersthal, J. F. Feltin, N. Grandjean. Spontaneous polarisation buildup in a room temperature polariton laser. *Physical Review Letters*, 101:136409, 2008

J. J. Baumberg, S. Christopoulos, G. Baldassarri Höger von Högersthal, A. Grundy, P. G. Lagoudakis, A. Kavokin, G. Christmann, R. Butté, E. Feltin, J. F. Carlin, N. Grandjean, D. Solnyshkov and G. Malpuech. Room Temperature Polariton Lasing and BEC in Semiconductor Microcavities, *Conference on Lasers and Electro-Optics*, 2008

A. Saß, R. Forge, S. Christopoulos, K. Knicker, P. Moroshkin and M. Weitz. Laser cooling of dense atomic gases by collisional redistribution of radiation and spectroscopy of molecular dimers in a dense buffer gas environment, in *Laser Refrigeration of Solids VII*, R. I. Epstein; D. V. Seletskiy; M. Sheik-Bahae, Editors, *Proceedings of SPIE*, 9000:90000A, 2014

S. Christopoulos, A. Saß, P. Moroshkin, L. Weller, R. Cota, B. Gerwers, K. Knicker, and M. Weitz. A Kennard-Stepanov relation study on redistributional laser cooling in dense gaseous ensembles, in *Laser Refrigeration of Solids VIII*, R. I. Epstein; D. V. Seletskiy; M. Sheik-Bahae, Editors, *Proceedings of SPIE*, 9380:93800M, 2015

S. Christopoulos, L. Weller, P. Moroshkin, D. Möller, M. Weitz, Spectroscopy and thermalization of dense atomic gases in redistributional laser cooling, in *Optical and Electronic Cooling of Solids*, R. I. Epstein; D. V. Seletskiy; M. Sheik-Bahae, Editors, Proceedings of SPIE, 9765:97650H, 2016

C. Wahl, R. Brausemann, J. Schmitt, F. Vewinger, S. Christopoulos, M. Weitz. Absorption spectroscopy of xenon and ethylene–noble gas mixtures at high pressure: towards Bose–Einstein condensation of vacuum ultraviolet photons. *Applied Physics B*, 122:296, 2016

S. Christopoulos, D. Möller, R. Cota, B. Gerwers, M. Weitz. Verifying thermodynamic equilibrium of molecular manifolds: Kennard-Stepanov spectroscopy of a molecular gas. *Physical Review A*, 95:022510, 2017

S. Christopoulos, P. Moroshkin, L. Weller, B. Gerwers, R. Forge, T. Ockenfels, F. Vewinger, M. Weitz. Rubidium spectroscopy at high-pressure buffer gas conditions: Detailed balance in the optical interaction of an absorber coupled to a reservoir. *Physica Scripta*, 93, 124006, 2018

Book Chapters

A. Saß, S. Christopoulos and M. Weitz. Laser cooling of dense gases by collisional redistribution of radiation. In G. Nemova (ed.), "Laser Cooling: Fundamentals and Applications", Jenny Stanford Publishing, October 2016

Conference Proceedings

SPIE, February 2016, San Francisco, USA

Talk: Spectroscopy and thermalization of dense atomic gases in redistributional laser cooling

LPHYS'15, August 2015, Shanghai, China

Talk: Laser cooling via redistribution of fluorescence and thermalization in dense gaseous ensembles

SPIE, February 2015, San Francisco, USA

Talk: A Kennard-Stepanov relation study on redistributional laser cooling in dense gaseous ensembles

SPIE, February 2014, San Francisco, USA

Talk: Laser cooling of dense atomic gases by collisional redistribution of radiation and spectroscopy of molecular dimers in a dense buffer gas environment

STIMSCAT Meeting, November 2008, Sheffield, UK

Talk: Investigation of stimulated scattering of polaritons in GaN Microcavities

Photon08, August 2008, Edinburgh, UK

Talk: Spontaneous symmetry breaking in an exciton-polariton Bose condensate at Room Temperature

E-MRS, May 2008, Strasbourg, France

Talk: Polariton Lasing and BEC in GaN Microcavities at Room Temperature

PLMCN7, April 2007, Havana, Cuba

Poster Presentation: Disentangling angular Polariton Dispersion in bulk GaN Microcavities

STIMSCAT Meeting, October 2006, Oxford, UK

Talk: Room Temperature Polariton Lasing in GaN Microcavities

PLMCN6 September 2006, Magdeburg, Germany

Abstract: Nonlinear Coherent Emission from Strong-Coupled GaN Microcavities at Room Temperature

Affiliations

Editor: American Journal of Optics and Photonics

Reviewer: Journal of Physics B: Atomic, Molecular and Optical Physics