Title	Multi-wavelength emission from a single InGaN/GaN nanorod analyzed by cathodoluminescence hyperspectral imaging
Authors	Kusch, Gunnar;Conroy, Michele;Li, Haoning;Edwards, Paul R.;Zhao, Chao;Ooi, Boon S.;Pugh, Jon;Cryan, Martin J.;Parbrook, Peter J.;Martin, Robert W.
Publication date	2018
Original Citation	Kusch, G., Conroy, M., Li, H., Edwards, P. R., Zhao, C., Ooi, B. S., Pugh, J., Cryan, M. J., Parbrook, P. J. and Martin, R. W. (2018) 'Multi-wavelength emission from a single InGaN/GaN nanorod analyzed by cathodoluminescence hyperspectral imaging', Scientific Reports, 8(1), 1742 (8pp). doi: 10.1038/s41598-018-20142-5
Type of publication	Article (peer-reviewed)
Link to publisher's version	https://www.nature.com/articles/s41598-018-20142-5 - 10.1038/s41598-018-20142-5
Rights	© 2018, the Authors. Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. Te images or other third party material in this article are included in the article's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this license, visit http://creativecommons.org/licenses/by/4.0/. - http://creativecommons.org/licenses/by/4.0/
Download date	2024-05-04 11:04:33
Item downloaded from	https://hdl.handle.net/10468/6348

University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

Multi-wavelength emission from a single InGaN/GaN nanorod analyzed by cathodoluminescence hyperspectral imaging

Gunnar Kusch[1,*], Michele Conroy[2,3,4], Haoning Li[2,3], Paul R. Edwards[1], Chao Zhao[5], Boon S. Ooi[5], Jon Pugh[6], Martin J. Cryan[6], Peter J. Parbrook[2,3], and Robert W. Martin[1]

[1]Department of Physics, SUPA, University of Strathclyde, Glasgow G4 0NG, United Kingdom
[2]Tyndall National Institute, University College Cork, Lee Maltings, Dyke Parade,Cork, Ireland
[3]School of Engineering, University College Cork, College Road, Cork, Ireland
[4]Pacific Northwest National Laboratory, Richland, WA, United States of America
[5]Photonics Laboratory, King Abdullah University of Science and Technology (KAUST), Thuwal 23955-6900, Saudi Arabia
[6]Department of Electrical and Electronic Engineering, University of Bristol, Bristol BS8 1UB, United Kingdom
[*]gunnar.kusch@strath.ac.uk

ABSTRACT

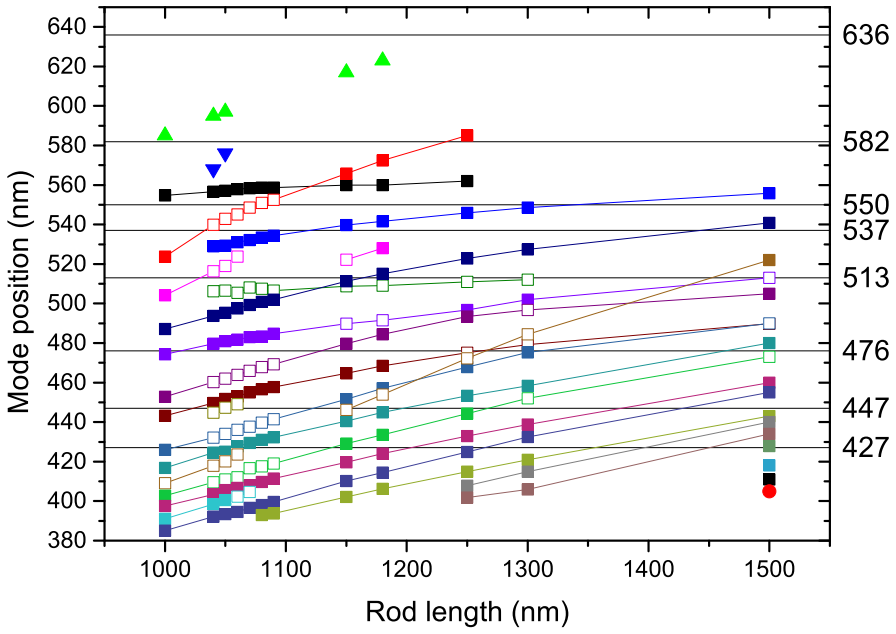

Figure 1. Mode positions as calculated by FDTD for varying nanorod length and constant nanorod diameter. Weak modes are shown as open symbols.

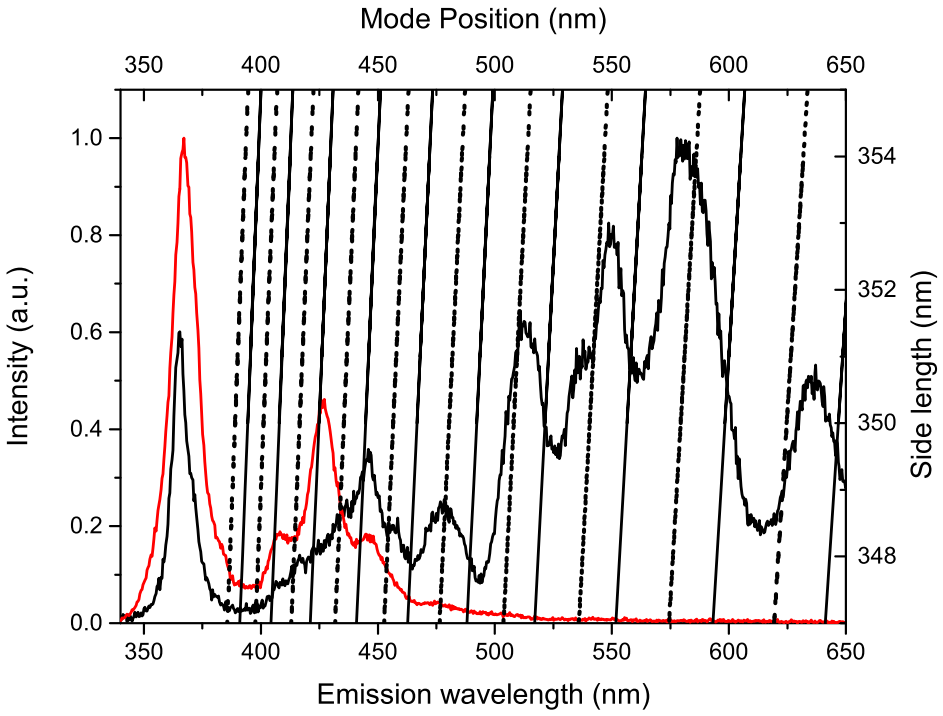

Figure 2. Mode positions as calculated by the plane wave model for different rod sidelength, TE modes are shown as dotted, TM modes as full lines.

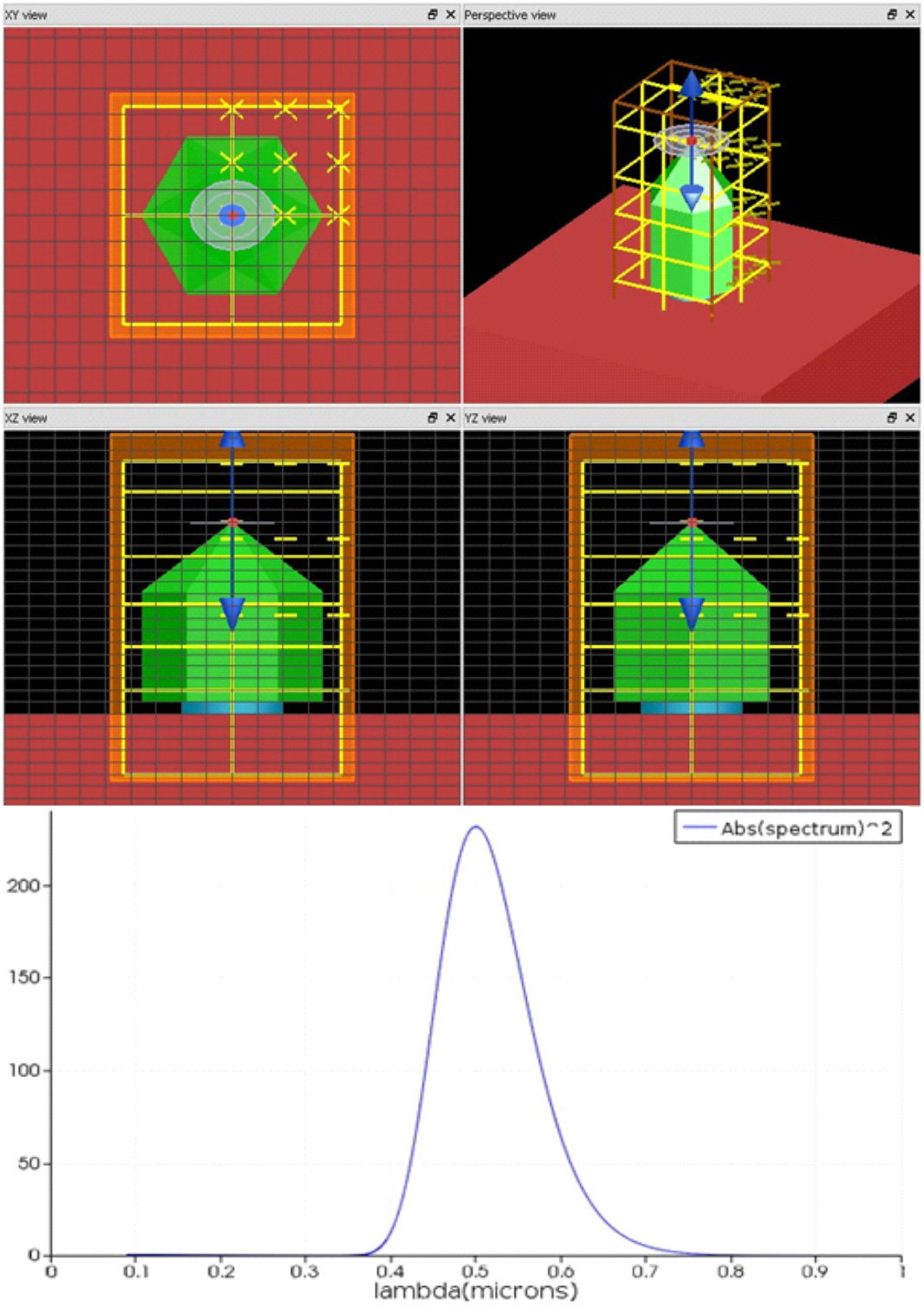

Figure 3. Nanorod geometry and input spectra used for the FDTD simulation of the nanorod. The source in the shown case is located in the apex of the nanorod representing the *c*-plane QW emission, for the modelling of the behaviour of the semipolar QWs the source was moved into the pyramidal section of the nanorod.