

MRS

Advances

Electronic, Photonic and Magnetic Materials

<https://doi.org/10.1557/adv.2019.190> Published online by Cambridge University Press

MRS

MATERIALS
RESEARCH
SOCIETY®

CAMBRIDGE
UNIVERSITY PRESS

MRS Advances: Electronic, Photonic and Magnetic Materials

Associate Editor:

Jeremy Theil, *Mountain View Energy, USA*

Principal Editors:

Abdelilah Slaoui, *Laboratoire des Sciences de l'ingénieur, de l'Informatique et de l'Imagerie, iCUBE-CNRS, France*

Karin Everschor-Sitte, *Johannes Gutenberg-Universität Mainz, Germany*

Deep Jariwala, *University of Pennsylvania, USA*
Viktorii Babicheva, *The University of Arizona, USA*

MRS Advances Editorial Board:

Editor-in-Chief: David F. Bahr, *Purdue University, USA*

Asa Barber, *University of Portsmouth, United Kingdom*

Meenakshi Dutt, *Rutgers University, USA*

Elizabeth L. Fleischer, *Materials Research Society, USA*

Marian Kennedy, *Clemson University, USA*
Marilyn L. Minus, *Northeastern University, USA*
Roger J. Narayan, *University of North Carolina/North Carolina State University, USA*
Ruth Schwaiger, *Karlsruhe Institute of Technology, Germany*
Jeremy Theil, *Mountain View Energy, USA*

Materials Research Society Editorial Office, Warrendale, PA, USA:

Ellen W. Kracht, *Publications Manager*

Susan Dittrich, *Journals Editorial Assistant*

Kirby L. Morris, *Journals Production Assistant*

Eileen M. Kiley, *Director of Communications*

Disclaimer

Authors of each article appearing in this Journal are solely responsible for all contents in their article(s) including accuracy of the facts, statements, and citing resources. Facts and opinions are solely the personal statements of the respective authors and do not necessarily represent the views of the editors, the Materials Research Society, or Cambridge University Press.

MRS Advances (EISSN: 2059-8521) is published by Cambridge University Press, One Liberty Plaza, Floor 20, New York, NY 10006 for the Materials Research Society.

Copyright © 2019, Materials Research Society. All rights reserved. No part of this publication may be reproduced, in any form or by any means, electronic, photocopying, or otherwise, without permission in writing from Cambridge University Press. Policies, request forms and contacts are available at: <http://www.cambridge.org/rights/permissions/permission.htm>. Permission to copy (for users in the USA) is available from Copyright Clearance Center at: <http://www.copyright.com>, email: info@copyright.com.

Purchasing Options:

Premium Subscription- Premium Subscription includes current subscription and one year's lease access to the full MRS Online Proceedings Library Archive for \$7,219.00 / £4,888.00 / €6,647.00. *Subscription-* Subscription with perpetual access to the content subscribed to in a given year, including three years of back-file lease access to content from the MRS Online Proceedings Library Archive. The price for a 2018 subscription is \$3,019.00 / £1,948.00 / €2,625.00. *MRS Members-* Access to *MRS Advances* is available to all MRS members without charge.

Contact Details:

For all inquiries about pricing and access to *MRS Advances*, please get in touch via the following email addresses: online@cambridge.org (for the Americas); library.sales@cambridge.org (for UK, Europe, and rest of world).

cambridge.org/adv

CONTENTS

ARTICLES

- Transport and Electromechanical Properties of $\text{Ca}_3\text{TaGa}_3\text{Si}_2\text{O}_{14}$ Piezoelectric Crystals at Extreme Temperatures 515**
Yuriy Suhak, Ward L. Johnson, Andrei Sotnikov,
Hagen Schmidt, and Holger Fritze
- Epitaxial Piezoelectric Langasite Thin Films for High-temperature Application 523**
Hendrik Wulfmeier, René Feder, Li Zhao,
and Holger Fritze
- Theoretical Prediction of Piezoelectric Property of New LiNbO_3 -type Compound AlTiO_3 531**
Kaoru Nakamura and Toshiharu Ohnuma
- Fabrication and Characterization of Multiferroic $\text{Al}_{0.5}\text{Fe}_{1.5}\text{O}_3$ Epitaxial Thin Films 539**
Badari Narayana Aroor Rao, Shintaro Yasui,
Tsukasa Katayama, and Mitsuru Itoh
- Structural Correlation of Ferroelectric Behavior in Mixed Hafnia-Zirconia High-k Dielectrics for FeRAM and NCFET Applications 545**
Vineetha Mukundan, Karsten Beckmann,
Kandabara Tapily, Steven Consiglio,
Robert Clark, Gert Leusink, Nathaniel Cady,
and Alain C Diebold
- The Linear Relationship of Spin Pumping Energy in a La:YIG/Pt Heterostructure used in a Microwave Rectifier 553**
Yiheng Rao, Huaiwu Zhang, Dainan Zhang,
Lichuan Jin, Qinghui Yang, Zhiyong Zhong,
Jie Li, and MingMing Li
- Photomagnetic Behavior and Infrared Spectroscopy of Rare-earth Doped $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ 559**
Ricardo Martínez, Hannu Huhtinen,
Wojciech Jadwisieniczak, and Ratnakar Palai

Solution-processed Cubic GaN for Potential Lighting Applications. . . .567

Aakash Kumar Jain, Sushma Yadav,
Meenal Mehra, Sameer Sapra,
and Madhusudan Singh

**Current Transient Study of RF GaN HEMTs Biased at Quiescent
Point of $V_{ds} = 28$ V and $I_d = 100$ mA/mm under Different
Temperatures575**

Yen-Pin Lin, Yi Nan Zhong,
and Yue-ming Hsin