

# **Magnetics 2019**

Orlando, Florida, USA  
23 - 24 January 2019

ISBN: 978-1-5108-8106-8

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2019) by TWST Events  
All rights reserved.

Printed by Curran Associates, Inc. (2019)

For permission requests, please contact TWST Events  
at the address below.

TWST Events  
622 3rd Ave, 34th FL  
New York, NY 10017  
USA

[twstevents.com](http://twstevents.com)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

<b>New Standards for Permanent Magnets</b> .....	1
<i>M. Devine</i>	
<b>Magneto-Optical Inline Scanner for Measuring and Characterization of Permanent Magnets</b> .....	16
<i>R. Holzhey</i>	
<b>Selecting Optimal Lamination Materials</b> .....	31
<i>S. Constantinides</i>	
<b>Magnetic Answers for Market Driven Needs</b> .....	46
<i>J. Whalen</i>	
<b>Rare Earth Magnets: Yesterday, Today And Tomorrow</b> .....	59
<i>J. Ormerod</i>	
<b>Rare Earth Magnets Alternates?</b> .....	89
<i>S. Narasimhan</i>	
<b>Reducing the Rare-Earth Content of Strong Permanent Magnets</b> .....	115
<i>D. Parker</i>	
<b>Tunable Quadrupole Magnets for Next Generation Electron Ion Colliders</b> .....	130
<i>J. Liu</i>	
<b>Significant Weight Reduction of Three-Phase Transformers through Advancements in Core Construction and Materials</b> .....	147
<i>K. Furmanczyk</i>	
<b>Comparison of Numerical and Analytical Methods for the Design of Permanent Magnets</b> .....	155
<i>T. Schliesch</i>	
<b>Anisotropic Injection Moulding of Multipole Radial Rotors for IPM</b> .....	173
<i>M. Ohm</i>	
<b>Impact of New Tariffs and a Looming Trade War</b> .....	186
<i>M. Miller</i>	
<b>Accurate 3-Axis Magnetic Field Measurements</b> .....	209
<i>R. Ughini</i>	
<b>Rare Earth Recycling to Increase Supply Security</b> .....	230
<i>D. Naumann</i>	
<b>Author Index</b>	