



*Journal of Zhejiang
University-SCIENCE A
(Applied Physics &
Engineering)*

Administrated by
Ministry of Education, China

Sponsored by
Zhejiang University

Published by
Zhejiang University Press

Edited by
Editorial Office of *Journal of
Zhejiang University-SCIENCE*

Printed by
Hangzhou Shengyuan Printing
Services Co., Ltd.

Editors-in-Chief
Huayong YANG,
Yunmin CHEN

Publication Date
1st Week per Month

Contact
Zhejiang University Press,
148 Tianmushan Road,
Hangzhou 310028, China;
Tel: +86-571-87952783;
E-mail: jzus_a@zju.edu.cn

Subscription
Zhejiang University Press;
Tel: +86-571-87952783;
E-mail: yangsq@zju.edu.cn;
Postal distributing code: 32-322

Price
100 CNY/Issue

ISSN 1673-565X
CN 33-1236/O4

CONTENTS

Review

- 183 Recent progress in the development of dielectric elastomer materials and their multilayer actuators

Shengchao JIANG, Junbo PENG, Lvting WANG, Hanzhi MA, Ye SHI

Research Articles

- 206 A method for support stiffness failure identification in a steel spring floating slab track of urban railway: a case study in China

Junyuan ZHENG, Caiyou ZHAO, Duojia SHI, Ping WANG, Jian WANG,
Bolong JIANG, Xi SHENG

- 223 Non-uniform thermal behavior of single-layer spherical reticulated shell structures considering time-variant environmental factors: analysis and design

Wucheng XU, Xiaoqing ZHENG, Xuanhe ZHANG, Zhejie LAI, Yanbin SHEN

- 238 Development of underwater electric manipulator based on interventional autonomous underwater vehicle (AUV)

Xiaohui HU, Jiawang CHEN, Hang ZHOU, Ziqiang REN

- 251 Churning loss characteristics of a wet three-phase high-speed reluctance motor

Zhenzhou ZHANG, Mingzhu DAI, Chenchen ZHANG, Yi CHEN, Bin MENG

- 268 Synthesis and characterization of three new solid polyoxometalates based on Wells-Dawson-derived sandwich-type polyanions $[\text{Co}_4(\text{H}_2\text{O})_2(\text{P}_2\text{W}_{15}\text{O}_{56})_2]^{16-}$

Jijie YE, Xuan XU, Chuande WU

JZUS-A was nominated for the Fourth “Chinese Government Award for Publishing” for Journals, and was ranked in the “Top 100 Chinese Sci-Tech Journals” in 2013, 2015, and 2017. It was supported by the “Project for Enhancing International Impact of China STM Journals” (2013–2015), and it is supported by the “China Sci-Tech Journal Excellence Action Plan” (2019–2023).

English Consultants Alan SEAL (NZ), Robert WELHAM (UK)

Executive Editors Shuqi YANG, Xinxin ZHANG