

---

# Bioengineering Based on Electrochemistry

---

## Editors:

**K. Sode**

**S. Tsujimura**

**A. Simonian**

**R. Mukundan**

**S. Calabrese Barton**

**S. D. Minteer**

## Sponsoring Divisions:



**Organic and Biological Electrochemistry**



**Energy Technology**



**Sensor**



Published by

**The Electrochemical Society**

65 South Main Street, Building D  
Pennington, NJ 08534-2839, USA

tel 609 737 1902

fax 609 737 2743

[www.electrochem.org](http://www.electrochem.org)

**ecs**transactions™

**Vol. 75, No. 46**

---

Copyright 2017 by The Electrochemical Society.  
All rights reserved.

This book has been registered with Copyright Clearance Center.  
For further information, please contact the Copyright Clearance Center,  
Salem, Massachusetts.

Published by:

The Electrochemical Society  
65 South Main Street  
Pennington, New Jersey 08534-2839, USA

Telephone 609.737.1902  
Fax 609.737.2743  
e-mail: [ecs@electrochem.org](mailto:ecs@electrochem.org)  
Web: [www.electrochem.org](http://www.electrochem.org)

ISSN 1938-6737 (online)  
ISSN 1938-5862 (print)  
ISSN 2151-2051 (cd-rom)

ISBN 978-1-62332-437-7 (CD-ROM)  
ISBN 978-1-60768-795-5 (PDF)

Printed in the United States of America.

---

***ECS Transactions, Volume 75, Issue 46***  
Bioengineering Based on Electrochemistry

**Table of Contents**

|                                                                                                                                                                                                                                  |            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <i>Preface</i>                                                                                                                                                                                                                   | <i>iii</i> |
| Optimization of Enzyme-Reconstituted Electrodes in Enzymatic Biofuel Cell for Low Power Applications<br><i>S. Parmar, S. Durga, S. Amaravati, S. Chittur Krishnaswamy</i>                                                        | 1          |
| Study of Microbial Fuel Cell for Implantable Application<br><i>A. Narla, D. Upadhyaya, S. Amaravati, S. Chittur Krishnaswamy</i>                                                                                                 | 9          |
| Demonstration of an Energy-Neutral, Off-Grid Microbial Fuel Cell System for Decentralized Wastewater Treatment<br><i>L. Hsu, M. Arias-Thode, M. Salvacion, Z. Benavidez, A. Mirhosseini, S. Babanova, S. Chen, O. Bretschger</i> | 19         |
| Author Index                                                                                                                                                                                                                     | 31         |