

Presentasi di Seminar Internasional

ICES 2016

International Conference on Energy Science

Bandung, Indonesia

25-27th July 2016

Modification of Poly(ethylene oxide) using Hybrid Inorganic-Organic Polymer Precursor as Polymer Electrolyte Matrix for Secondary Battery

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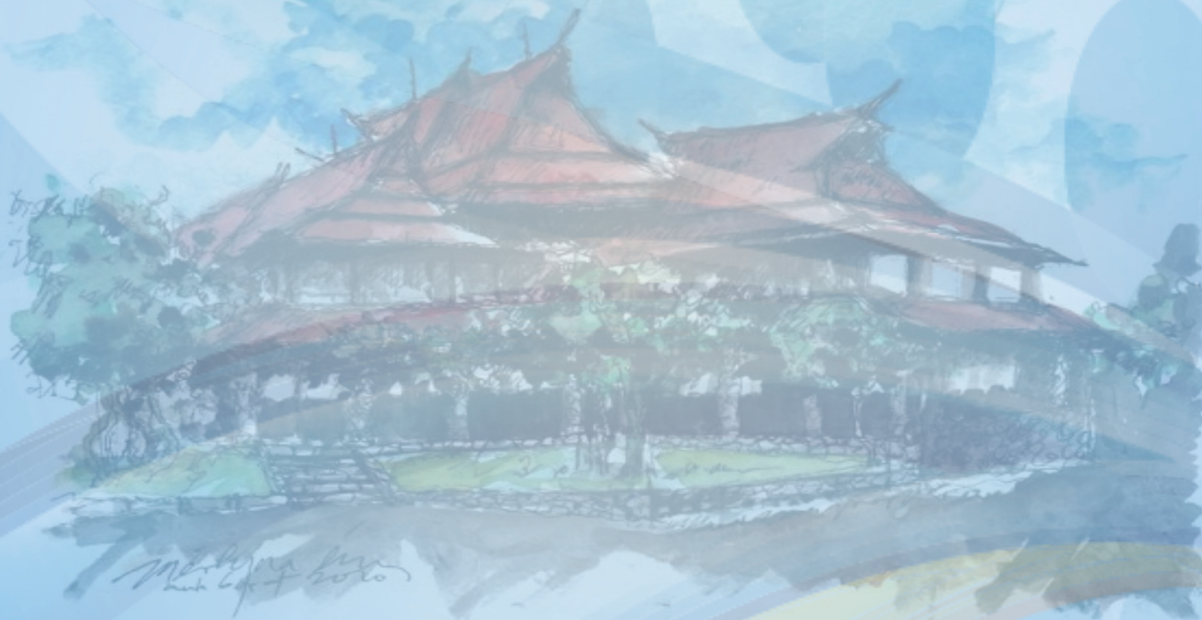


BOOK OF ABSTRACT

<http://portal.fi.itb.ac.id/ices2016>

ICES 2016

INTERNATIONAL CONFERENCE ON ENERGY SCIENCES



East Hall - Institut Teknologi Bandung
July, 25-27th, 2016

Department of Physics
Faculty of Mathematics and Natural Sciences
Institute for Research and Community Services (LPPM)
Institut Teknologi Bandung



Preface

We are pleased to welcome all of the participants to the 1st International Conference on Energy Sciences (ICES 2016).

ICES 2016, which is organized by the Physics Department, Faculty of Mathematics and Natural Sciences, Bandung Institute of Technology (ITB), and supported by Institute for Research and Community Services ITB is aimed at summarizing recent research activities relevant to the innovation in Energy Sciences and its applications and facilitates communication among relevant experts.

In this scientific event the latest research results will present the state-of-the-art development in the field and help to guide our future research directions. It is also designed to offer the opportunity of making direct contacts for the Indonesian scientists and students with well-known scientists abroad, and thereby fostering the existing research collaborations and extending international research networking for the future.

The range of topics covered by ICES-2016 includes (but not limited to):

- Batteries (ES-1)
- Conventional Energies (ES-2)
- Renewable Energies (ES-3)
- Nuclear Energies (ES-4)
- Energy Conversion (ES-5)
- Energy Storage (ES-6)
- Energy Technologies (ES-7)
- Policies & Management (ES-8)
- Environmental Aspect of Energy Systems (ES-9)
- International Cooperation and Innovation in Energy Systems (ES-10)
- Energy Education (ES-11)
- Energy Conservation (ES-12)

The program of ICES 2016 features 5 invited speeches and 125 contributed oral presentations, which come from 37 institutions, and 5 different countries, namely: Japan, South Korea, Malaysia, Philippines, and Indonesia. All papers will be reviewed after they are presented in this event. Selected papers will be published in the Institute of Physics (IoP) Conference Series.

To all participants, we hope that you will learn new subjects, make new contacts, and have fruitful discussions with others. To overseas participants, we wish you a pleasant stay in Bandung, the capital city of Asia and Africa.

Finally, we wish to express our sincere appreciation to all of the presenters for their valuable contributions and also to the members of the program committee for their excellent works in selecting abstracts and organizing the program.

Bandung, July 2016
ICES 2016 Chair

Prof. Abdul Waris, Ph.D.

ICES 2016 Schedule

First Day, Monday, July 25th, 2016

Time	Event	Venue
13.00 - 15.00	Registration	Registration Desk (Dept. of Physics, ITB)

Second Day, Tuesday, July 26th, 2016

Time	Event	Venue					
07.30 - 08.30	Registration Morning Snack	Registration Desk (ITB East Hall / Aula Timur)					
08.30 - 09.00	Opening Ceremony	ITB East Hall / Aula Timur					
09.00 - 09.45	Zeily Nurachman	Plenary Session (ITB East Hall / Aula Timur)					
09.45 - 10.15	Group Photo Spare Time	ITB East Hall / Aula Timur					
10.15 - 11.30	Parallel Session 1	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6
		RNW-1	RNW-67	TEC-15	MNG-33	NUC-12	STR-26
		RNW-2	RNW-83	TEC-20	MNG-38	NUC-43	STR-52
		RNW-3	RNW-88	TEC-31	MNG-94	NUC-54	STR-53
		RNW-4	RNW-86	TEC-35	MNG-116	NUC-147	STR-59
		RNW-6	RNW-97	TEC-37	MNG-119	NUC-125	STR-93
11.30 - 13.00	Lunch Break						
13.00 - 13.45	HongJoo Kim	Plenary Session (ITB East Hall / Aula Timur)					
13.45 - 14.00	Afternoon Snack Spare Time						
14.00 - 15.15	Parallel Session 2	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6
		RNW-7	RNW-98	TEC-41	CVR-14	NUC-92	CVR-40
		RNW-21	RNW-104	TEC-49	CVR-27	NUC-107	CVR-60
		RNW-23	RNW-101	TEC-47	CVR-30	NUC-134	CVR-123
		RNW-22	RNW-111	TEC-78	STR-112	NUC-120	EDU-11
		RNW-24	RNW-113	TEC-82	STR-129	NUC-122	EDU-69
						NUC-151	

Third Day, Wednesday, July 27th, 2016

Time	Event	Venue					
07.30 - 08.30	Registration Morning Snack	Registration Desk (ITB East Hall / Aula Timur)					
08.30 - 09.15	Masatoshi Kondo	Plenary Session (ITB East Hall / Aula Timur)					
09.15 - 10.00	Byungha Shin						
10.00 - 10.30	Group Photo Spare Time	ITB East Hall / Aula Timur					
10.30 - 11.45	Parallel Session 3	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6
		RNW-28	RNW-115	TEC-84	CNV-13	NUC-131	ENV-25
		RNW-29	ENV-118	TEC-108	CNV-75	NUC-130	ENV-34
		RNW-32	COP-10	TEC-109	CNV-95	NUC-132	ENV-46
		RNW-48	ENV-124	EDU-50	CNV-96	NUC-144	ENV-56
		RNW-45	ENV-127	EDU-58	CNV-103	NUC-136	ENV-102
11.45 - 13.00	Lunch Break						
13.00 - 13.45	Ferry Iskandar	Plenary Session (ITB East Hall / Aula Timur)					
13.45 - 14.00	Spare Time						
14.00 - 15.15	Parallel Session 4	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6
		RNW-51	CNV-126	TEC-114	BTR-5	NUC-133	NUC-150
		RNW-57	CNV-135	TEC-121	BTR-39	NUC-145	BTR-105
		RNW-61	CSV-36	TEC-143	BTR-42	NUC-138	NUC-149
		RNW-62	CSV-90	EDU-81	BTR-68	NUC-146	BTR-106
		RNW-63	CSV-110	EDU-91	BTR-117	NUC-137	NUC-148
15.15 - 15.30	Afternoon Snack Closing Ceremony	ITB East Hall / Aula Timur					

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[STR-112] Modification of PEO Using Hybrid Polymer Precursor as an Electrolyte Medium for Lithium Ion In Secondary Battery

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Abstract

We report a modification the polymer of PEO (poly(ethylene oxide)) using hybrid polymer precursor as an electrolyte medium. The precursor of hybrid polymer of PTMSA (poly((trimethoxysilylpropylmetacrylate)) was synthesized using sol-gel process from monomer of TMSPMA (trimethoxysilylpropylmetacrylate). The PEO was dissolved in acetonitrile and then added with LiClO₄ as salt ion. The varied amount of hybrid polymer precursor of PTMSA was added into the solution in order to adjust its viscosity. We characterized its properties using density test, Electrochemical Impedance Spectroscopy (EIS) and Cyclic Voltamogram. The result of density test show that an addition of PTMSA to PEO has increased its density. From Nyquist plot and Bode plot we found that the equivalent circuit is suitable with Randles cell which is consist of electrode resistance, electrolyte resistance, and real capacitor. The Cyclic Voltamogram show a reduction and oxidation reactions. We found the characteristic of electrolyte gel of PEO-PTMSA-LiClO₄ is similar with the PEO-LiClO₄.

Keywords: hybrid polymer, PEO, electrolyte gel, lithium perchlorate, cyclic voltamogram, EIS

Topic: Energy Storage