

Shikata Medal

Masuzo Shikata and the Polarograph

After graduating from the Department of Agriculture at Tokyo Imperial University in 1920, Masuzo Shikata went to Germany in 1922 as a research fellow of the Ministry of Education to study colloid chemistry and electrochemistry. Dissatisfied with the lack of precise measurement methods in colloid chemistry, he sought another study destination and visited universities across Europe. In 1923, while in Prague, Czechoslovakia, he met Jaroslav Heyrovský, who was researching dropping mercury electrode, and became strongly interested in fundamental research of interfacial electrochemistry. In June of the same year, he moved to Prague and began research on the relationship between applied voltage and electrolytic current.

At that time, experiments to record current-voltage curves were time-consuming as they involved manual switching of resistors, allowing for only two measurements per day at most. Therefore, there was a desire to automate this process. Shikata achieved this by rotating a drum wound with a resistance wire and sliding a contact to automatically vary the applied voltage. The electrolytic current was recorded by reflecting light from a light source onto a mirror attached to an ammeter and then onto photosensitive paper synchronized with the rotating drum. In this way, he completed the automatic recording device for current-voltage curves, called the "polarograph," during his study abroad period. This was the world's first instrument to automatically plot dependent variables against independent variables in experiments.

Upon returning to Japan in October 1924, Shikata, who had been appointed as an associate professor at the Faculty of Agriculture of Kyoto Imperial University, collaborated with Isamu Tachi, who joined as an assistant professor the following February, to operate the polarograph brought back from Prague. The first successful measurement of current-voltage curves was achieved on June 18, 1925. Since then, various events have been held to commemorate this day as "Polarograph Memorial Day." (For details, please refer to the Society's Journal, Vol. 61, No. 2).

About the Shikata Medal

The Society awards the Shikata Medal, named in honor of Masuzo Shikata's achievements, in two categories as per the Society's regulations:

- ♦ "Shikata International Medal" to researchers, both domestically and internationally, who have made significant contributions in the fields of electrochemical measurement methods, electrochemical reactions, electrochemical analysis methods, and other related areas of electrochemistry and are highly esteemed worldwide.
- ♦ "Shikata Medal" as a research encouragement award to young members (up to 45 years of age as of April 1 of the award year) who have achieved outstanding research accomplishments with expectations for future development.

The deadline for candidate recommendations is every year on **June 18, "Polarograph Memorial Day."**

Recipients of the Shikata International Medal:

2008 Zdeněk Samec (J. Heyrovský Institute of Physical Chemistry)
2008 Toshio Yao (Osaka Prefecture University)
2011 Shunichi Uchiyama (Saitama Institute of Technology)
2011 Isao Taniguchi (Kumamoto University)
2012 Fumio Mizutani (University of Hyogo)
2013 Vladimír Mareček (The Academy of Sciences of the Czech Republic)
2015 Teruo Hinoue (Shinshu University)
2016 Naotoshi Nakashima (Kyushu University)
2016 Masashi Hojo (Kochi University)
2017 Masaaki Haga (Chuo University)
2018 Toru Ozeki (Hyogo University of Teacher Education)
2019 Kenji Kano (Kyoto University)
2020 Hubert H. Girault (École Polytechnique Fédérale de Lausanne)
2021 Toshiyuki Osakai (Kobe University)
2023 Takamasa Sagara (Nagasaki University)

Recipients of the Shikata Medal:

2004 Hajime Katano (Fukui Prefectural University)
2004 Osamu Shirai (Kyoto University)
2008 Masato Tominaga (Kumamoto University)
2011 Hirosuke Tatsumi (Shinshu University)
2013 Akihiro Kitatsuji (Japan Atomic Energy Agency)
2014 Tadaharu Ueda (Kochi University)
2014 Yumi Yoshida (Kyoto Institute of Technology)
2015 Hiroshi Shiigi (Osaka Prefecture University)
2015 Tomoyuki Yasukawa (University of Hyogo)
2018 Kumi Inoue (Tohoku University)
2018 Shinichi Yamazaki (National Institute of Advanced Industrial Science and Technology)
2019 Akihiro Uehara (National Institute of Radiological Sciences)
2019 Kohei Uematsu (Fukui Prefectural University)
2019 Akira Kotani (Tokyo University of Pharmacy and Life Sciences)
2020 Hiroki Hotta (Kobe University)
2020 Kohei Miyazaki (Kyoto University)
2022 Seiya Tsujimura (University of Tsukuba)
2022 Hiroaki Matsuura (Saitama Institute of Technology)

Recipients of the 60th Anniversary Commemorative Special Award:

2014 Mitsugi Senda

2014 Tokuji Ikeda

2014 Sorin Kihara

2014 Takashi Kakiuchi

2014 Fumiyo Kusu

Recipient of the Technological Development Special Award:

2018 Masakatsu Karatsu (Husou Seisakusho)