

EDITORIAL

PJ ZEON Award for outstanding papers in *Polymer Journal* 2016

Polymer Journal (2017) 49, 465–466; doi:10.1038/pj.2017.19

The three winners of the 2016 PJ ZEON Award have been announced by the Society of Polymer Science Japan (SPSJ) as follows:

Yasuhiro Matsuda (Shizuoka University, Japan) for the contribution 'Renaturation behavior of xanthan with high molar mass and wide molar mass distribution', Vol. 48, No.5, 2016.

Lucia Mergola (University of Salento, Italy) for the contribution 'Novel polymeric sorbents based on imprinted Hg(II)-diphenylcarbazone complexes for mercury removal from drinking water', Vol. 48, No.1, 2016.

Takamasa Sakai (The University of Tokyo, Japan) for the contribution 'Sol-gel transition behavior near critical concentration and connectivity', Vol. 48, No.5, 2016.

Matsuda, Mergola and Sakai received their award certificates and medals at an award ceremony held in conjunction with the SPSJ annual meeting in May 2017 in Makuhari. Each winner also received a cash prize of 300,000 yen, and gave an invited talk based on their respective papers.

On behalf of the editors and editorial board of *Polymer Journal*, I wish to congratulate Matsuda, Mergola and Sakai on this honor in recognition of their excellent papers.^{1–3} I hope the award will provide encouragement to these young researchers for their bright future careers. Academic profiles of the winners can be found below this announcement.

The PJ ZEON Award started since 2005 as the successor of The PJ Paper Award, which started since 1992.

This PJ ZEON Award is open to all first authors of papers published in *Polymer Journal*⁴ who are under 38 years of age. We are looking forward to receiving your submission papers and many applications for the 2017 PJ ZEON Award. Each year the SPSJ selects up to three most outstanding papers published by young authors in *Polymer Journal*, as recommended by the selection committee and board of directors of the SPSJ. Those who are interested should go to the SPSJ website (<http://main.spsj.or.jp/>) for further information. Finally, we express our sincere appreciation to Zeon Corporation for their generous sponsorship of this award.

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- 1 Matsuda, Y., Sugiura, F., Okumura, K. & Tasaka, S. Renaturation behavior of xanthan with high molar mass and wide molar mass distribution. *Polym. J.* **48**, 653–658 (2016).
- 2 Mergola, L., Scorrano, S., Bloise, E., Bello, M. P. D., Catalano, M., Vasapollo, G. & Sole, R. D. Novel polymeric sorbents based on imprinted Hg(II)-diphenylcarbazone complexes for mercury removal from drinking water. *Polym. J.* **48**, 73–79 (2016).
- 3 Sakai, T., Katashima, T., Matsushita, T. & Chung, U.-I. Sol-gel transition behavior near critical concentration and connectivity. *Polym. J.* **48**, 629–634 (2016).
- 4 Kato, T. PJ ZEON Award for outstanding papers in *Polymer Journal* 2015. *Polym. J.* **48**, 665–666 (2016).



About the winners: Yasuhiro Matsuda received his PhD degree in 2006 from Osaka University under the supervision of Professor Takahiro Sato. He was a postdoctoral fellow (2006–2007) in the group of Professor Atsushi Takahara at Kyushu University. He became an assistant professor of Shizuoka University in 2007, and was promoted to an associate professor in 2016.

About the article: Xanthan is a double helical polysaccharide used as a viscosity enhancer. The helix can be unwound by heating (denaturation) and rewound by cooling (renaturation), and the structure and viscosity can be changed during these processes. The authors reported the molecular weight dependence of the structural changes of xanthan induced by denaturation and renaturation. This molecular weight dependence had not been elucidated because of the experimental difficulties, especially for xanthan samples with very high molecular weight. The authors carried out precise measurements of light scattering and viscosity for native and renatured xanthan with high molecular weight, and indicated they are stable to the changes induced by denaturation and renaturation.



About the winners: Mergola Lucia received her PhD degree (2013) from University of Salento in Materials engineering and structures, under the supervision of Professor Giuseppe Vasapollo (Professor Emeritus in Chemistry). In 2013, she won a scholarship to attend an advanced training course for the strengthening of the research centre on human health and the environment - TRAIN2HE, Strategic Line LS3 (2013-2015). She was a postdoctoral research fellow (2015-2017) in the Department of Engineering for Innovation at University of Salento under the supervision of Dr Roberta Del Sole. In February 2015, the author contributed to the production of a published review titled 'Molecularly Imprinted Polymer: Present prospective', that received the Best Paper Award 2015 of the *International Journal of Molecular Science*. A lot of scientific works were disseminated worldwide through participation to international congress. Her subjects mainly focus on (1) synthesis of ion imprinted polymers used as sorbent materials for extraction of metal ions from complex matrix; (2) preparation of molecularly imprinted polymers for detection of specific biomarkers from biological samples (blood and urine).

About the award article: The author reported the preparation of ion-imprinted polymers (IIPs) for the selective removal of Hg(II) ions from aqueous media. Polymeric sorbents were prepared using different synthesis approaches to understand the influence of diphenylcarbazone, used as non-polymerizable ligand, on absorption performance. In particular, bulk polymerization was first used to prepare two polymers, IIP1 and IIP2, in the absence and presence of diphenylcarbazone. The trapping of the ligand in IIP2 promotes the formation of ternary complexes with mercury ions and 4-vinylpyridine inducing an increase in binding performance. A third polymer (IIP3) was also synthesized using precipitation polymerization to evaluate the contribution of morphological characteristics on absorption performance compared with the addition of diphenylcarbazone. Competitive studies revealed a stronger influence of IIP3 morphology on selectivity performance. Indeed, monodisperse microbeads were obtained only in this case. Finally, the applicability of the polymers to real-world samples was demonstrated through batch experiments using drinking water spiked with Hg(II) ions, and the best removal efficiency of nearly 80% was obtained for IIP2.



About the winners: Takamasa Sakai received his PhD degree (2007) from the University of Tokyo under the supervision of Professor Ryo Yoshida. He was an assistant professor (2007-2015), and was promoted to an associate professor in 2015 at the University of Tokyo. He investigates polymer gels with controlled network structure named Tetra-PEG gel. He focuses on the fundamentals of polymer gels, including the mechanical properties and diffusion of substances in polymer gels, and applications of hydrogels to the biomedical field.

About the award article: The authors reported the sol-gel transition behavior of model polymer network system, Tetra-PEG gel. The authors independently tuned two main parameters governing the sol-gel transition: connectivity and polymer concentration. The connectivity required percolating a system continuously increased with a decrease in the polymer concentration, which is different from that predicted by the classical percolation model. The viscoelastic behavior at the critical points did not agree with the prediction of the percolation model in a low polymer concentration. These results indicate that the lattice assumption cannot be applied for the gelling system prepared far below the overlapping concentration.