Seung-Ho Yu, Ph.D.

Associate Professor, Department of Chemical and Biological Engineering, Korea University
Adjunct Professor, Department of Battery-Smart Factory, Korea University
Adjunct Professor, Department of Smart Mobility, Korea University
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RESEARCH EXPERIENCE

Department of Chemical and Biological Engineering, Korea University, Associate Professor	Sep. 2021-present
Department of Battery-Smart Factory, Korea University, Adjunct Professor	Mar. 2021-present
Department of Smart Mobility, Korea University, Adjunct Professor	Mar. 2022-present
Department of Chemical and Biological Engineering, Korea University, Assistant Professor	Mar. 2019-Aug. 2021
Department of Chemistry and Chemical Biology, Cornell University, Postdoctoral Associate	Sep. 2015-Feb. 2019
Center for Nanoparticle Research, Institute for Basic Science (IBS), Senior Researcher	Sep. 2014-Aug. 2015
Research Institute of Advanced Materials, Seoul National University, Researcher	Sep. 2013-Aug. 2014

EDUCATION

School of Chemical and Biological Engineering, Seoul National University, Ph. D.	Sep. 2008-Aug. 2013
School of Chemical and Biological Engineering, Seoul National University, B. S.	Mar. 2004-Aug. 2008

RESEARCH INTERESTS

Seung-Ho's research focuses on mechanistic studies of rechargeable battery electrodes using *operando* synchrotron X-ray based methods (such as X-ray phase contrast imaging, X-ray absorption spectroscopy and X-ray diffraction and so on), and *in-situ*/cryogenic electron microscopy. He is also interested in designing and developing new materials at the nanoscale level to be applied to electrochemical devices. These include but are not restrained to electrodes in secondary batteries (lithium-ion, lithium-sulfur, and sodium-ion batteries) and electrocatalysts for the oxygen reduction reaction in fuel cells.

HONORS & AWARDS

1. 1st Ecopro Young Scientist Awards (2023)
2. 박수문 학술상 (2023)
3. The Excellent Lecture Award from Korea University, Spring, 2022
4. Toray Research Grant for Young Investigator (2022)
5. 9th Miwon Commercial New Scientist Award (2021)
6. The Excellent Lecture Award from Korea University, Fall, 2020
7. The Excellent Lecture Award from Korea University, Spring, 2020
8. POSCO TJ Park Science Fellowship (2020, A certificate ceremony was held on Sep 27th 2019 at POSCO center.)
9. The Excellent Lecture Award from Korea University, Spring, 2019
10. Postdoctoral Fellowship from National Research Foundation of Korea (2015)
11. Best Paper Awards from Korea Synchrotron Radiation User's Association (2013)
12. Best Paper Awards from The Korean Society of Industrial Engineering Chemistry (2013)

ACTIVITIES

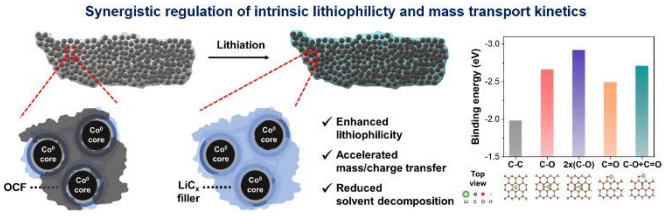
- **학술간사, 재료부문위원회**, The Korean Institute of Chemical Engineers Jan. 2021-Dec. 2021
- **Associate Editor**, Korean Journal of Chemical Engineering Jan. 2023-Present
- **NICE편집위원**, The Korean Institute of Chemical Engineers Nov. 2021-Dec. 2023
- **학계이사**, Korean Energy Society Jan. 2022- Present
- **편집이사**, The Korean Sensors Society Jan. 2022- Present
- **산학이사**, The Korean Society of Industrial and Engineering Chemistry Jan. 2024- Present
- **실무위원, 이차전지분과**, The Korean Electrochemical Society Mar. 2022- Present
- **한국방사광이용자협회 전문위원** Jan. 2022- Present
- **나노기술연구협의회 간사** Jan. 2022- Present

- **Members**

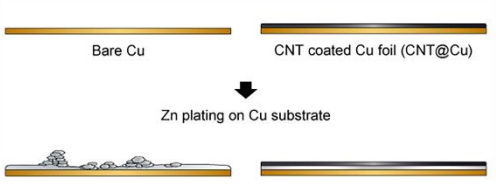
The Korean Institute of Chemical Engineers, The Korean Society of Industrial and Engineering Chemistry, The Korean Electrochemical Society, Korean Energy Society, The Korean Sensors Society

SELECTED RECENT CORRESPONDING AUTHORED PUBLICATIONS

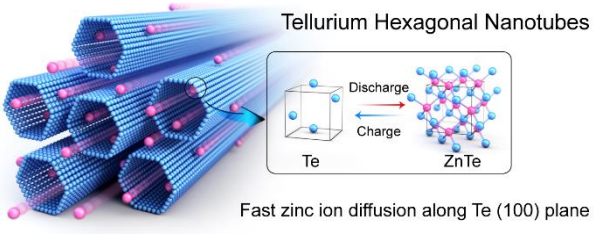
1. Minjun Bae, Sung-Joon Park, Minki Kim, Eunji Kwon, Seungho Yu, Juhyung Choi, Yujin Chang, Yonghwan Kim, Yoon Jeong Choi, Hwichan Hong, Liwei Lin, Wang Zhang, Seungman Park, Ji Young Maeng, Jungjin Park, Seung-Yong Lee,* Seung-Ho Yu* and Yuanzhe Piao*, Synergistic regulation of intrinsic lithiophilicity and mass transport kinetics of non-lithium-alloying nucleation sites for stable operation of low N/P ratio lithium metal batteries, *Adv. Energy Mater.,* 2024, online published. [*Go to article*] Online publication date: 01 March 2024 **(Corresponding author)**



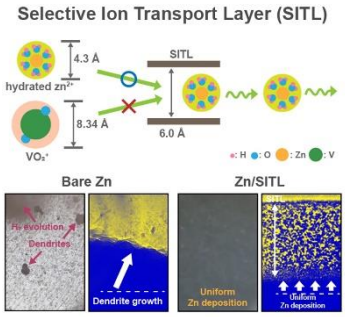
2. Beom-Keun Cho‡, Sung-Ho Huh‡, So Hee Kim, Seungho Yu, Jong-Seong Bae, Jung-Keun Yoo, Seung-Ho Yu*, Long cycle-life aqueous Zn battery enabled by facile carbon nanotube coating on Cu current collector, *Carbon Energy,* 2024, 4, 155-169. [*Go to article*] Online publication date: 04 Jan 2024 **(Corresponding author)**



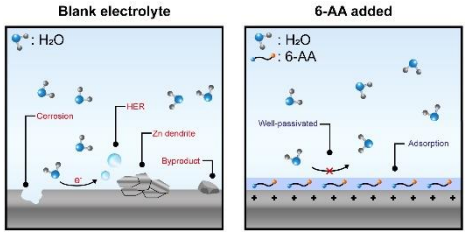
3. Mihyun Kim‡, Hyosik Kim‡, Si-Hwan Lee, Seungho Yu, Won Kim, Jong-Seong Bae, Chi-Yeong Ahn, Hyungwon Shim, Ji Eun Lee* and Seung-Ho Yu*, Te hexagonal nanotubes with fast 1-dimensional Zn ion diffusion for high-performance zinc-ion battery cathodes, *Chem. Eng. J.,* 2024, 481, 148256. [*Go to article*] Online publication date: 01 Feb 2024 **(Corresponding author)**



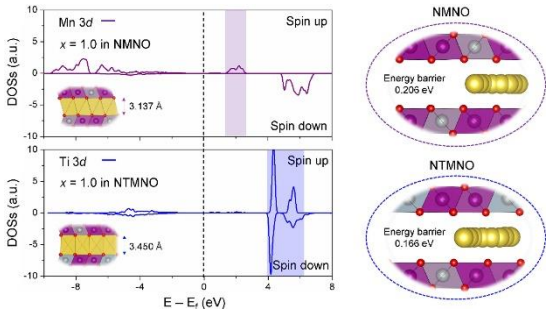
4. Young-Hoon Lee, Yunseo Jeoun, Ji Hwan Kim, Jaehyuk Shim, Kwang-Soon Ahn*, Seung-Ho Yu* and Yung-Eun Sung*, Selective ion transport layer for stable aqueous zinc-ion batteries, *Adv. Funct. Mater.,* 2024, *Accepted.* [*Go to article*] Online publication date: 29 Nov 2023 **(Corresponding author)**



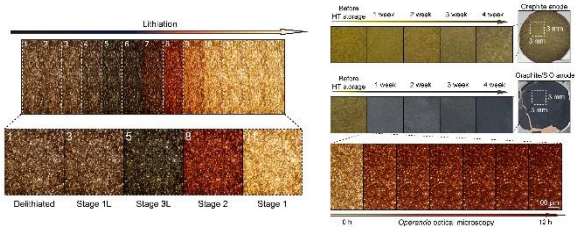
5. Sung-Ho Huh‡, Yoon Jeong Choi‡, So Hee Kim, Jong-Seong Bae, Si-Hwan Lee, Seung-Ho Yu*, Enabling the uniform zinc deposition by zwitterion additive in aqueous zinc metal anode, *J. Mater. Chem. A,* 2023, 11, 19384-19395. [*Go to article*] Online publication date: 15 Aug 2023 **(Corresponding author)**



6. Dohyeong Kwon‡, Sung-Joon Park‡, Jewoon Lee, Sangeon Park, Seung-Ho Yu* and Duho Kim*, Strong anionic repulsion for fast Na kinetics in P2-type layered oxides, *Adv. Sci.,* 2023, 10, 2206367. [*Go to article*] Online publication date: 07 Feb 2023 **(Corresponding author)**

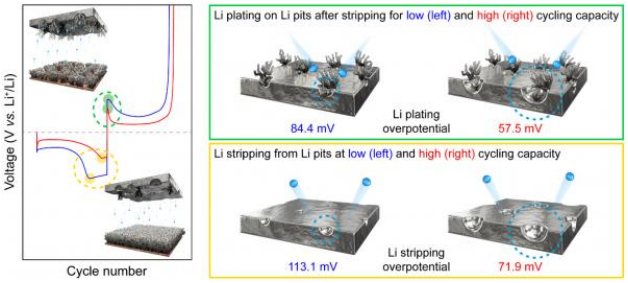


7. Ban Seok Lee‡, Sang-Hwan Oh‡, Yoon Jeong Choi‡, Min-Jeong Yi, So Hee Kim, Shin-Yeong Kim, Yung-Eun Sung, Sun Young Shin, Yongju Lee and Seung-Ho Yu*, SiO-induced thermal instability and interplay between graphite and SiO in graphite/SiO composite anode, *Nature Commun.,* 2023, 14, 150. [*Go to article*] Online publication date: 11 Jan 2023 **(Corresponding author)**

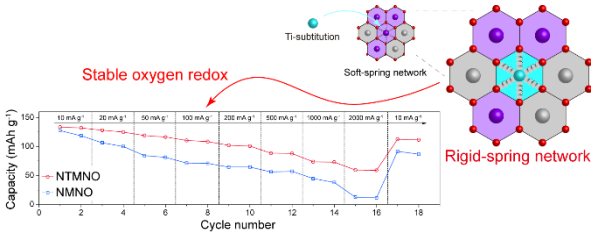


8. Ji Hyun Um‡, Seong-Jun Kim‡, Jae-Hwan Hyun, Mihyun Kim, Si-Hwan Lee and Seung-Ho Yu*, Real-time visualizing nucleation and growth of electrodes for post lithium-ion batteries, *Acc. Chem. Res.,* 2023, 56, 440-451. [*Go to article*] Online publication date: 23 Jan 2023. **(Corresponding author)**

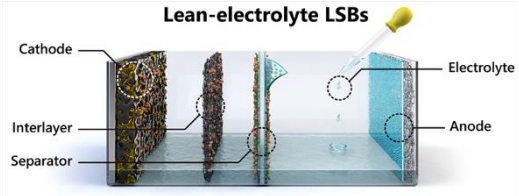
9. Jae-Hwan Hyun‡, Min-Jeong Yi‡, Hyejin Jung‡, Si-Hwan Lee, Ji Hyun Um and Seung-Ho Yu*, Electrochemical behavior and morphological evolution of Li metal anode under high cycling capacity, *Energy Storage Mater.,* 2023, 54, 146-155. [*Go to article*] Online publication date: 17 Oct 2022 **(Corresponding author)**



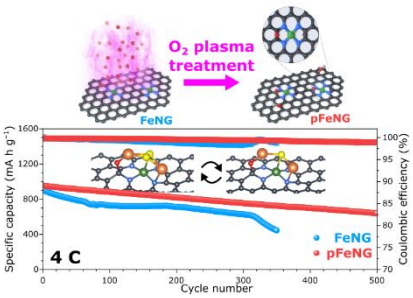
10. Sung-Joon Park‡, Jaewoon Lee‡, Geon-Hee Yoon, Chanwoo Koo, Si-Hwan Lee, Sojung Koo, Dohyeong Kwon, Seok Hyun Song, Tae-Yeol Jeon, Hionsuck Baik, Hyungsub Kim, Duho Kim* and Seung-Ho Yu*, Rigid-spring-network in P2-type binary Na layered oxides for stable oxygen redox, *Energy Storage Mater.,* 2022, 53, 340-351. [*Go to article*] Online publication date: 14 Sep 2022 **(Corresponding author)**



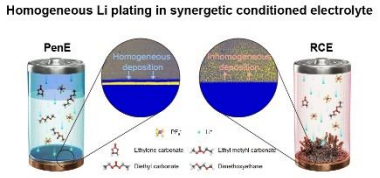
11. Yunseo Jeoun‡, Min-Seob Kim‡, Si-Hwan Lee, Ji Hyun Um, Yung-Eun Sung* and Seung-Ho Yu*, Lean-electrolyte lithium-sulfur batteries: recent advances in the design of cell components, *Chem. Eng. J.,* 2022, 450, 138209. [*Go to article*] Online publication date: 22 July 2022 **(Corresponding author)**



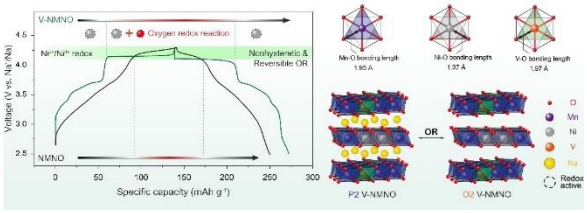
12. Euiyeon Jung‡, Seong-Jun Kim‡, Jiheon Kim‡, Sojung Koo, Jaewoo Lee, Shin-Yeong Kim, Vinod K. Paidi, Wonjae Ko, Junseok Moon, Kug-Seung Lee, Sung-Pyo Cho, Duho Kim*, Seung-Ho Yu*, Yung-Eun Sung* and Taeghwan Hyeon*, Oxygen-plasma-treated Fe-N-C catalysts with dual binding sites for enhanced electrocatalytic polysulfide conversion in lithium-sulfur batteries, *ACS Energy Lett.,* 2022, 7, 2646-2653. [*Go to article*] Online publication date: 20 July 2022 **(Corresponding author)**



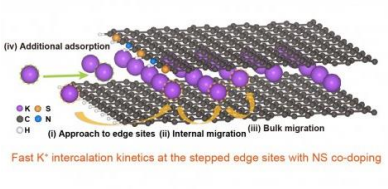
13. Yunseo Jeoun‡, Kookhan Kim‡, Shin-Yeong Kim, Si-Hwan Lee, Sung-Ho Huh, So Hee Kim, Xin Huang, Yung-Eun Sung*, Héctor D. Abruña* and Seung-Ho Yu*, Surface roughness-independent homogeneous lithium plating in synergetic conditioned electrolyte, *ACS Energy Lett.,* 2022, 7, 2219-2227. [*Go to article*] Online publication date: 6 June 2022 **(Corresponding author)**



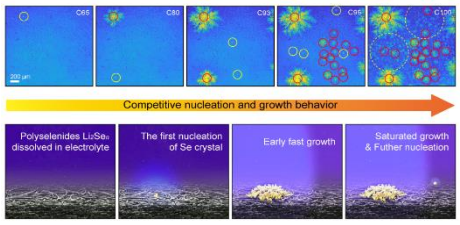
14. Chanwoo Koo‡, Dohyeong Kwon‡, Sung-Joon Park, Jaewoon Lee, Geon-Hee Yoon, Seok Hyun Song, Tae-Yeol Jeon, Heemin Kang, Hyungsub Kim, Duho Kim* and Seung-Ho Yu*, Extending nonhysteretic oxygen capacity in P2-type Ni-Mn binary Na oxides, *Chem. Eng. J.,* 2022, 446, 137429. [*Go to article*] Online publication date: 7 June 2022 **(Corresponding author)**



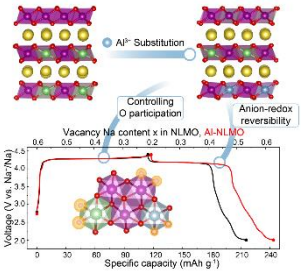
15. Juhyung Choi‡, Aihua Jin‡, Hyun Dong Jung‡, Dongjin Ko, Ji Hyun Um, Yoon Jeong Choi, So Hee Kim, Seoin Back*, Seung-Ho Yu* and Yuangzhe Piao*, Nitrogen and sulfur co-doped graphene nanoribbons with well-ordered stepped edges for high-performance potassium-ion battery anodes, *Energy Storage Mater.,* 2022, 48, 325-334. [*Go to article*] Online publication date: 26 March 2022 **(Corresponding author)**



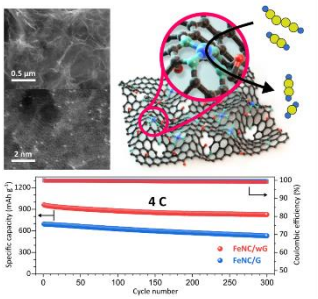
16. Ji Hyun Um‡, Aihua Jin‡, Xin Huang, Jeesoo Seok, Seong Soo Park, Janghyuk Moon, So Hee Kim, Hyun Sik Kim, Sung-Pyo Cho, Héctor D. Abruña* and Seung-Ho Yu*, Competitive nucleation and growth behavior in Li-Se batteries, *Energy Environ. Sci.,* 2022, 15, 1493-1502. [*Go to article*] Online publication date: 15 Feb. 2022 **(Corresponding author)**



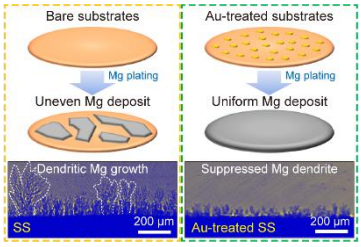
17. Geon-Hee Yoon‡, Sojung Koo‡, Sung-Joon Park, Jaewoon Lee, Chanwoo Koo, Seok Hyun Song, Tae-Yeol Jeon, Hyungsub Kim, Jong-Seong Bae, Won-Jin Moon, Sung-Pyo Cho, Duho Kim* and Seung-Ho Yu*, Enabling stable and nonhysteretic oxygen redox capacity in Li-excess Na layered oxides, *Adv. Energy Mater.,* 2022, 2103384. [*Go to article*] Online publication date: 8 Feb. 2022 **(Corresponding author)**



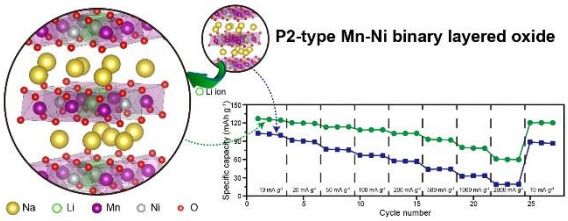
18. Jiheon Kim‡, Seong-Jun Kim‡, Euiyeon Jung‡, Dong Hyeon Mok, Vinod K. Paidi, Jaewoo Lee, Hyeon Seok Lee, Yunseo Jeoun, Wonjae Ko, Heejong Shin, Byoung-Hoon Lee, Shin-Yeong Kim, Hyunjoong Kim, Ji Hwan Kim, Sung-Pyo Cho, Kug-Seung Lee, Seoin Back*, Seung-Ho Yu*, Yung-Eun Sung* and Taeghwan Hyeon*, Atomic structure modification of Fe-N-C catalysts via morphology engineering of graphene for enhanced conversion kinetics of lithium-sulfur batteries, *Adv. Funct. Mater.,* 2022, 9, 10838-10845. [Go to article] Online publication date: 26 Jan. 2022 **(Corresponding author)**



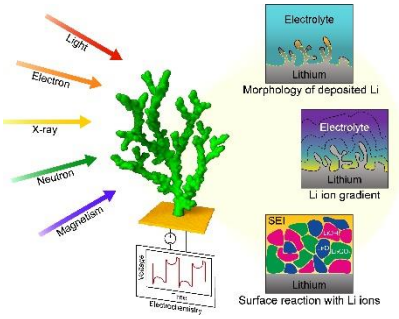
19. Jin Hwan Kwak‡, Yunseo Jeoun‡, Si Hyoung Oh, Seungho Yu, Jae-Hong Lim, Yung-Eun Sung*, Seung-Ho Yu* and Hee-Dae Lim*, *Operando* visualization of morphological evolution in Mg metal anode: insights into dendrite suppression for stable Mg metal batteries, *ACS Energy Lett.,* 2022, 7, 162-170. [Go to article] Online publication date: 8 Dec. 2021 **(Corresponding author)**



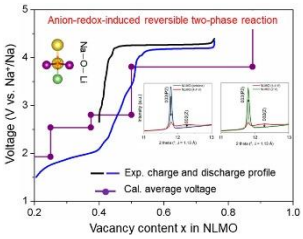
20. Sung-Joon Park‡, Jaewoon Lee‡, In-Hwan Ko, Sojung Koo, Seok Hyun Song, Chanwoo Koo, Geon-Hee Yoon, Tae-Yeol Jeon, Hyungsub Kim, Duho Kim* and Seung-Ho Yu*, *Energy Storage Mater.,* 2021, 42, 97-108. [Go to article] Online publication date: 18 July 2021 **(Corresponding author)**



21. Ji Hyun Um and **Seung-Ho Yu***, Unraveling the mechanisms of lithium metal plating/stripping via in-situ/operando analytical techniques, *Adv. Energy Mater.,* 2021, 2003004. [Go to article] Online publication date: 28 Dec 2020 **(Corresponding author)**

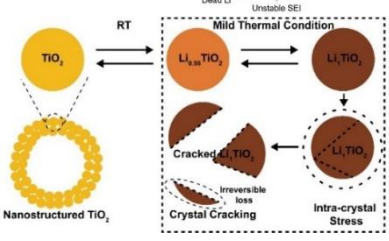


22. Seok Mun Kang‡, Duho Kim‡, Kug-Seung Lee, Min-Seob Kim, Aihua Jin, Jae-Hyuk Park, Chi-Yeong Ahn, Tae-Yeol Jeon, Young Hwa Jung, **Seung-Ho Yu***, Junyoung Mun* and Yung-Eun Sung*, Structural and thermodynamic understanding in Mn-based sodium layered oxides during anionic redox, *Adv. Sci.* 2020, 2001263 [Go to article] Online publication date: 2 July 2020 **(Corresponding author)**



23. Ji Hyun Um‡, Kookhan Kim‡, Jungjin Park‡, Yung-Eun Sung* and **Seung-Ho Yu***, Revisiting the strategies for stabilizing lithium metal anodes, *J. Mater. Chem. A,* 2020, 8, 13874-13895. [Go to article] Online publication date: 25 Jun 2020 **(Corresponding author)**

24. Min-Seob Kim‡, Byoung-Hoon Lee‡, Jae-Hyuk Park‡, Hyeon Seok Lee, Wytse Hooch Antink, Euiyeon Jung, Jiheon Kim, Tae Yong Yoo, Chan Woo Lee, Chi-Yeong Ahn, Seok Mun Kang, Jinsol Bok, Wonjae Ko, Xiao Wang, Sung-Pyo Cho, **Seung-Ho Yu***, Taeghwan Hyeon* and Yung-Eun Sung*, Operando identification of chemical and structural origin of Li-ion battery aging at near-ambient temperature, *J. Am. Chem. Soc.,* 2020, 142, 13406–13414. [Go to article] Online publication date: 1 July 2020 **(Corresponding author)**



FULL PUBLICATIONS (h-index:45 i10-index:106, from Google 2024-04-07)

1. **Seung-Ho Yu**, Andrea Pucci, Tobias Herntrich, Marc-Georg Willinger, Seung-Hwan Baek, Yung-Eun Sung and Nicola Pinna*, Surfactant-free nonaqueous synthesis of lithium titanium oxide (LTO) nanostructures for lithium ion battery applications, *J. Mater. Chem*. 2011, 21, 806–810. [*Go to article*] Online publication date: 15 Nov 2010 **(First author)**
2. Catherine Marichy, Nicola Donato, Marc-Georg Willinger, Mariangela Latino, Dmitry Karpinsky, **Seung-Ho Yu**, Giovanni Neri and Nicola Pinna*, Tin dioxide sensing layer grown on tubular nanostructures by a non-aqueous atomic layer deposition process, *Adv. Funct. Mater*. 2011, 21 (4), 658–666. [*Go to article*] Online publication date: 13 Dec 2010 **(Co-author)**
3. Tae-Yeol Jeon, Nicola Pinna, Sung Jong Yoo, **Seung-Ho Yu**, Sang-Kyung Kim, Seongyop Lim, Donghyun Peck, Doo-Hwan Jung and Yung-Eun Sung*, Enhanced activity of Pt-based electrocatalysts for oxygen reduction via a selective Pt deposition process, *J. Electroanal. Chem.* 2011, 662, 70–79. [*Go to article*] Online publication date: 29 Mar 2011 **(Co-author)**
4. Mihyun Park, Nohyun Lee, Seung Hong Choi, Kwangjin An, **Seung-Ho Yu**, Jeong Hyun Kim, Seung-Hae Kwon, Dokyoon Kim, Hyoungsu Kim, Sung-Il Baek, Tae-Young Ahn, Ok Kyu Park, Jae Sung Son, Yung-Eun Sung, Young-Woon Kim, Zhongwu Wang, Nicola Pinna and Taeghwan Hyeon*, Large-scale synthesis of ultrathin manganese oxide nanoplates and their applications to T1 MRI contrast agents, *Chem. Mater*. 2011, 23 (14), 3318–3324. [*Go to article*] Online publication date: 30 Jun 2011 **(Co-author)**
5. Bo Yun Kim, **Seung-Ho Yu**, Hyun Sik Kim, Dong-Chan Lee, In-Bo Shim, Sean E. Derosa, Yung-Eun Sung and Jeffrey Pyun*, Morphological conversion of dipolar core-shell Au-Co nanoparticles into beaded Au-Co_3O_4 nanowires, *J. Mater. Chem*. 2011, 21, 14163–14166. [*Go to article*] Online publication date: 07 Jul 2011 **(Co-author)**
6. Seunghwan Baek, **Seung-Ho Yu**, Seung-Keun Park, Andrea Pucci, Catherine Marichy, Dong-Chan Lee, Yung-Eun Sung, Yuanzhe Piao and Nicola Pinna*, A one-pot microwave-assisted non-aqueous sol-gel approach to metal oxide/graphene nanocomposites for Li-ion batteries, *RSC Adv*. 2011, 1, 1687–1690. [*Go to article*] Online publication date: 27 Oct 2011 **(Co-author)**
7. Seung-Keun Park‡, **Seung-Ho Yu**‡, Nicola Pinna, Seunghee Woo, Byungchul Jang, Young-Hoon Chung, Yong-Hun Cho, Yung-Eun Sung* and Yuanzhe Piao*, A facile hydrazine-assisted hydrothermal method for the deposition of monodisperse SnO_2 nanoparticles onto graphene for lithium ion batteries, *J. Mater. Chem*. 2012, 22, 2520–2525. (‡ equal contribution) [*Go to article*] Online publication date: 21 Dec 2011 **(First author)**
8. Wan-Geun La, Suk Ho Bhang, Jung-Youn Shin, Hee Hun Yoon, Jooyeon Park, Hee Seok Yang, **Seung-Ho Yu**, Yung-Eun Sung and Byung-Soo Kim*, 3,4-Dihydroxy-L-phenylalanine as a cell adhesion molecule in serum-free cell culture, *Biotechnology Progress* 2012, 28 (4), 1055–1060. [*Go to article*] Online publication date: 18 Jun 2012 **(Co-author)**
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