# Important publications in the last ten years:

- *Macroporous ultramicroelectrodes for improved electroanalytical measurements*, Szamocki, R., Velichko, A., Holzapfel, C., Mücklich, F., Ravaine, S., Garrigue, P., Sojic, N., Hempelmann, R., Kuhn, A., **Anal. Chem.** 79 (2007) 533; ***First literature example of porous ultramicroelectrodes***

- *Dissymmetric carbon nanotubes by bipolar electrochemistry*, Warakulwit, C., Nguyen T., Majimel J., Delville M.-H., Lapeyre V., Garrigue P., Ravaine V., Limtrakul J., Kuhn A., **NanoLett.** 8 (2008) 500; ***Our initial report on wireless asymmetric modification of nanoobjects***

- *Propulsion of microobjects by dynamic bipolar self-regeneration*, Loget G., Kuhn A., **J.Am.Chem.Soc.** 132 (2010) 15918 (*Nature Highlight*); ***Article describing for the first time the use of bipolar electrochemistry for generating motion***

- *Electric field induced chemical locomotion of conducting objects*, Loget G., Kuhn A., **Nature Comm.** 2 (2011) 535 (*Nature Highlight*); ***Broken symmetry in gas production on a particle by wireless electrochemistry leads for the first time to directed motion***

- *Bulk synthesis of Janus objects and asymmetric patchy particles*, Loget G., Kuhn A., **J.Mater.Chem.** 22 (2012) 15457 (*Invited Feature article, Front cover*); ***Review article***

- *True bulk synthesis of Janus objects by bipolar electrochemistry*, Loget, G., Roche, J., Kuhn, A., **Adv. Mater.** 24 (2012) 5111 (*Back cover*); ***Article describing our new technology for Janus particle synthesis by wireless electrochemistry based on the related patent***

- *Indirect bipolar electrodeposition*, Loget, G. Roche, J., Gianessi, E., Bouffier, L., Kuhn, A., **J. Am. Chem. Soc.** 134 (2012) 20033; ***Important extension of wireless electrodeposition to non-electroactive materials***

- *Bipolar electrochemistry: from materials science to motion and beyond*, Loget, G., Zigah, D., Bouffier, L., Sojic, N., Kuhn, A., **Acc. Chem. Res.** 46 (2013) 2513; ***Review article***

- *Enantioselective recognition at mesoporous chiral metal surfaces*, Wattanakit, C., Saint Come, Y. B., Lapeyre, V., Bopp, P. A., Heim, M., Yadnum, S., Nokbin, S., Warakulwit, C., Limtrakul, J., Kuhn, A. **Nature Comm.** 5 (2014) 3325; ***First example of chiral imprinting in mesoporous metals***

- *Asymmetric synthesis using chiral encoded metal*, Yutthalekha, T., Wattanakit, C., Lapeyre, V., Nokbin, S., Warakulwit, C., Limtrakul, J., Kuhn, A., **Nature Comm.** 7 (2016) 12678; ***Chiral porous metal is used for the first time to induce enantioselectivity during electrochemical synthesis***

- *Anisotropic metal deposition on $TiO_2$ particles by electric field induced charge separation*, Tiewcharoen, S., Warakulwit, C., Lapeyre, V., Garrigue, P., Fourier, L., Elissalde, C., Buffière, S., Legros, P., Gayot, M., Limtrakul, J., Kuhn, A., **Angew. Chem. Int. Ed**. 56 (2017) 11431; ***Important extension of the concept of bipolar electrochemistry to nanometer sized particles***

- *Wireless electrochemical actuation of conducting polymers*, Gupta, B., Goudeau, B., Kuhn, A., **Angew. Chem. Int. Ed**. (2017) in press, DOI: 10.1002/anie.201709038; ***Very first example of efficient mechanical actuation of conducting polymers by bipolar electrochemistry***

**Some of our contributions have been advertised by press releases of the CNRS (in French):**

Asymmetric single point modification of nanoobjects by wireless electrochemistry :
http://www.cnrs.fr/inc/communication/direct_labos/kuhn.htm

Absolute asymmetric synthesis of chiral molecules:
http://www.cnrs.fr/inc/communication/direct_labos/kuhn2.htm

Asymmetry induced by bipolar electrochemistry for generating motion:
http://www2.cnrs.fr/presse/communique/2013.htm?debut=24&theme1=5

Bifunctional reactivity inducing gas bubble based propulsion:
http://www.cnrs.fr/inc/communication/direct_labos/kuhn3.htm

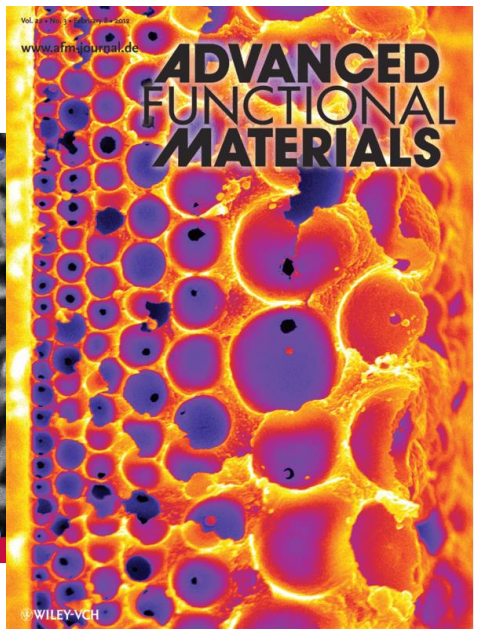
Bulk process for synthesis of Janus particles:
http://www.cnrs.fr/inc/communication/direct_labos/kuhn4.htm

Chiral recognition on mesoporous metal surface:
http://www.cnrs.fr/inc/communication/direct_labos/kuhn5.htm

First example of asymmetric electrosynthesis based on chiral metal phases:
http://www.cnrs.fr/inc/communication/direct_labos/kuhn6.htm

Bipolar electrochemistry with semiconductor nanoparticles:
http://www.cnrs.fr/inc/communication/direct_labos/kuhn7.htm

## Selected cover pages


Lab on a Chip
Miniaturisation for chemistry, physics, biology, materials science and bioengineering
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Volume 12 | Number 11 | 8 May 2012 | Pages 1905–2076
Themed issue: NANO-technologies and -materials for miniaturisation
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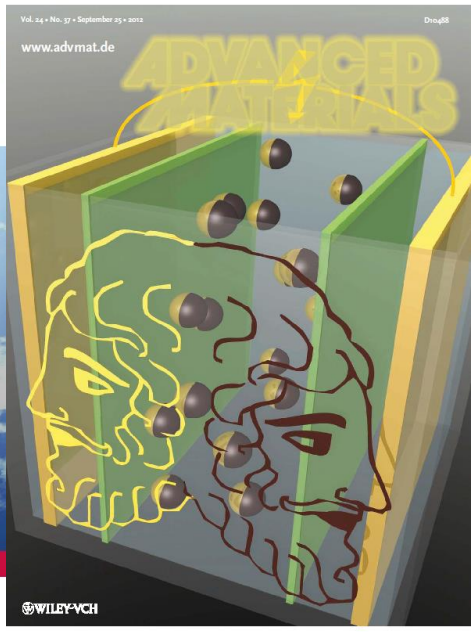
PAPER
Gabriel Loget and Alexander Kuhn
Bipolar electrochemistry for cargo-lifting in fluid channels
1473-0197(2012)12:11;1-1


Vol. 24 • No. 37 • September 25 • 2012
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ISSN 0959-9428
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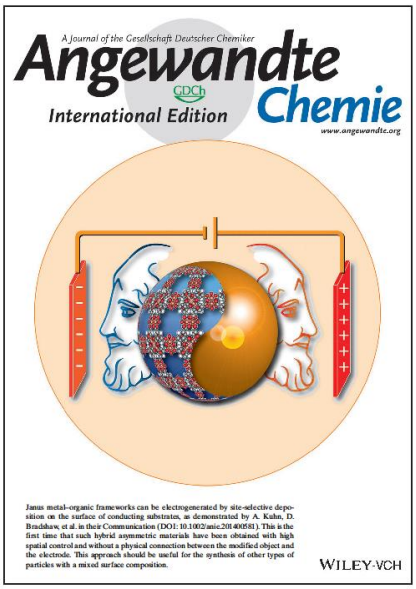
FEATURE ARTICLE
Gabriel Loget and Alexander Kuhn
Bulk synthesis of Janus objects and asymmetric patchy particles
0959-9428(2012)22:31;1-F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Janus metal-organic frameworks can be electrogenerated by site-selective deposition on the surface of conducting substrates, as demonstrated by A. Kuhn, D. Bradshaw, et al. in their Communication (DOI: 10.1002/anie.201400581). This is the first time that such hybrid asymmetric materials have been obtained with high spatial control and without a physical connection between the modified object and the electrode. This approach should be useful for the synthesis of other types of particles with a mixed surface composition.
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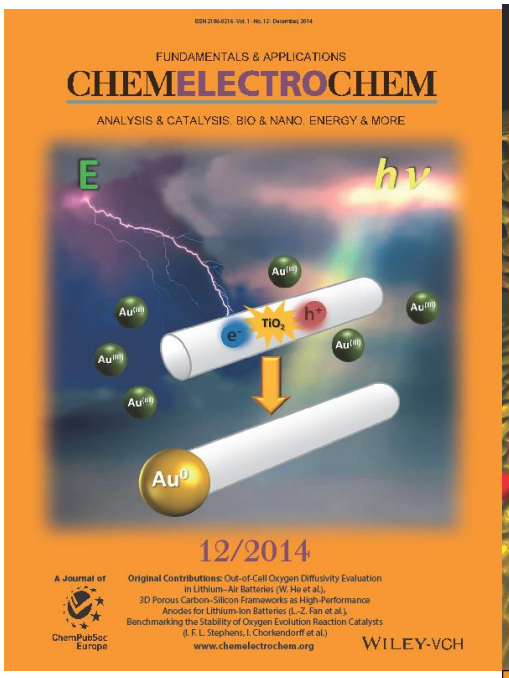
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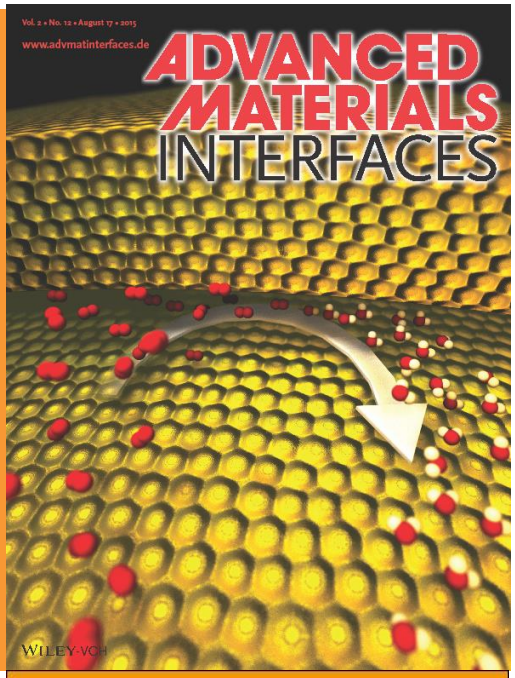
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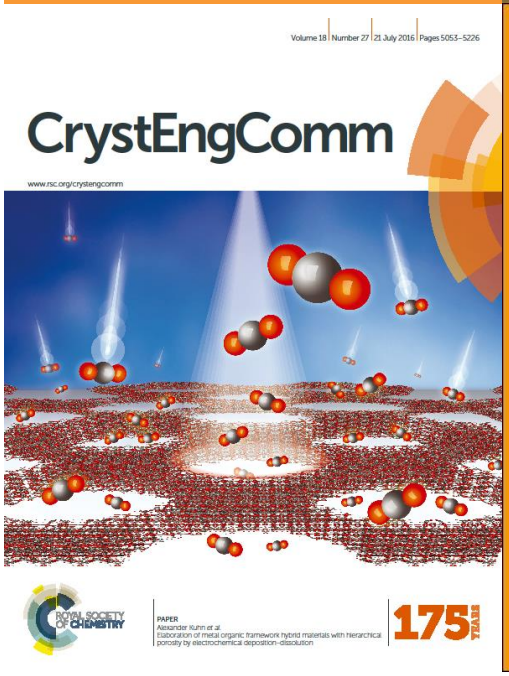
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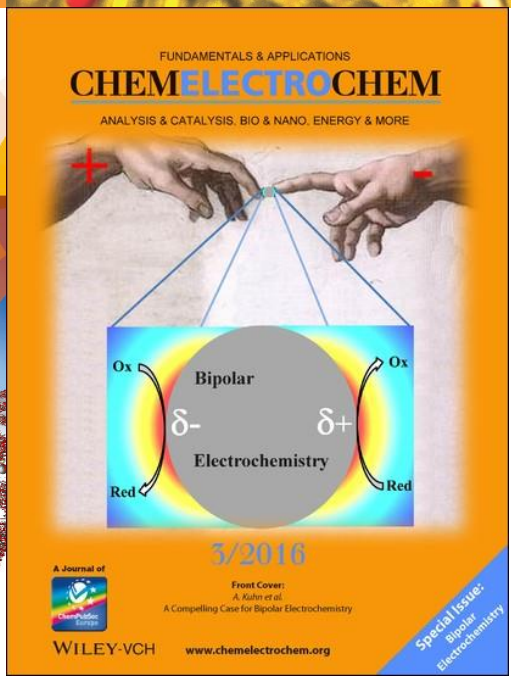
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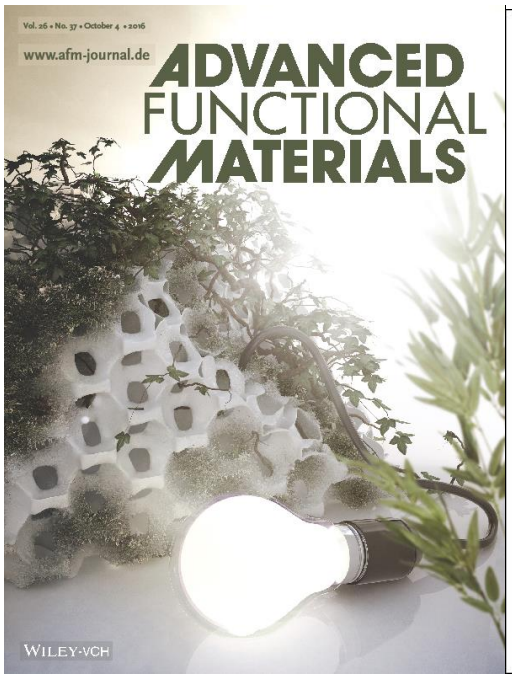
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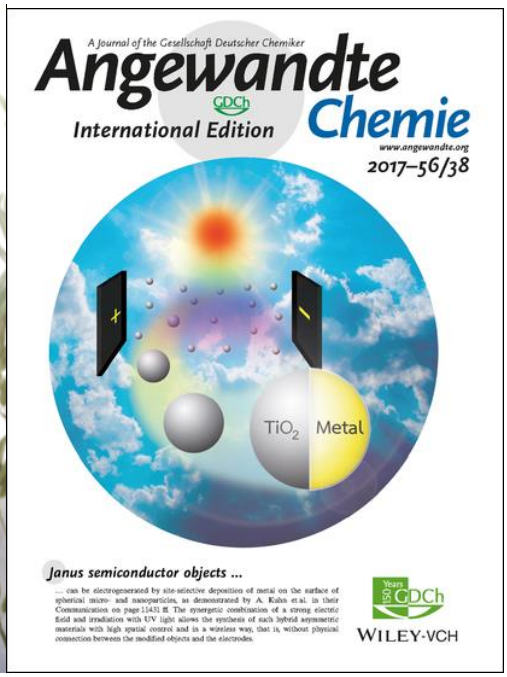
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Metal
Janus semiconductor objects ...
... can be electrogenerated by site-selective deposition of metal on the surface of spherical micro- and nanoparticles, as demonstrated by A. Kuhn et al. in their Communication on page 11431 ff. The synergetic combination of a strong electric field and irradiation with UV light allows the synthesis of such hybrid asymmetric materials with high spatial control and in a wireless way, that is, without physical connection between the modified objects and the electrodes.
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