



ICFE-10

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# INTERNATIONAL CONFERENCE ON f-ELEMENTS (ICFE-10)

Including rare earths (Y, Sc, lanthanides) and actinides

*EPFL*, September 3-6, 2018

## PLENARY LECTURE

### Upconversion Super Dots for Biophotonics and Nanophotonics Applications



Professor **Dayong JIN**, University of Technology Sydney (UTS), Sydney, Australia  
Distinguished Professor, Australian Research Council Future Fellow Director

The presentation will showcase efforts in translating both high-brightness lanthanide probes and time-resolved photonic sensing techniques to integrated biomedical devices, towards solving the 'needle in the haystack' problem in rapid diagnostics and super resolution imaging applications. A joint effort across a broad spectrum of disciplines via interdisciplinary, interdisciplinary and industry collaborations will have a major impact leading to new quantitative biotechnology and cell biology methods [1-4].

#### References

- [1] D. Liu, X. Xu, Y. Du, X. Qin, Y. Zhang, C. Ma, S. Wen, W. Ren, E.M. Goldys, J.A. Piper, S. Dou, X. Liu, D. Jin, Three-dimensional controlled growth of monodisperse sub-50-nm heterogeneous nanocrystals, *Nature Commun.* 7 (2016) Art. Nr. 10254-.
- [2] B. Zhou, B. Shi, D. Jin, X. Liu, Controlling upconversion nanocrystals for emerging applications, *Nature Nanotech.* 10 (2015) 924-936.
- [3] Y.Q. Lu, J.B. Zhao, R. Zhang, Y.J. Liu, D.M. Liu, E.M. Goldys, X.S. Yang, P. Xi, A. Sunna, J. Lu, Y. Shi, R.C. Leif, Y.J. Huo, J. Shen, J.A. Piper, J.P. Robinson, D.Y. Jin, Tunable lifetime multiplexing using luminescent nanocrystals, *Nature Photon.* 8 (2014) 33-37.
- [4] Y.Q. Lu, J. Lu, J.B. Zhao, J. Cusido, F.M. Raymo, J.L. Yuan, S. Yang, R.C. Leif, Y.J. Huo, J.A. Piper, J.P. Robinson, E.M. Goldys, D.Y. Jin, On-the-fly decoding luminescence lifetimes in the microsecond region for lanthanide-encoded suspension arrays, *Nature Commun.* 5 (2014) Art. Nr. 3741-.