

# Conference Report

## PCC Christmas Symposium Basel 2023

Gladwin Suryatin Alim, Tzu-Chin Chang Chien, John Coats, Ilse Friedländer, Salome Heim, Bradley Higginson, Annika Huber, Charlotte Kress, Anton Kudashev, Elizaveta Maksimova, Elinor Morris, Livia Müller, Andreas Ostertag, Mahsa Parvizian, Carlotta Seno, Dorothee Wagner\* and Joël Wellauer\*

\*Correspondence: D. Wagner, E-mail: dorothee.wagner@unibas.ch and J. Wellauer, E-mail: joel.wellauer@unibas.ch

University of Basel, Department of Chemistry, St. Johannis-Ring 19, CH-4056 Basel.

**Keywords:** Basel · Interdisciplinary · PCC

### The PCC

Established in 2012 at the University of Basel's Department of Chemistry, the PhD Chemistry Community (PCC) serves as representatives for graduate students and postdoctoral researchers within the department. Our primary goal is to bring the members of our department closer together and bridge gaps between the research groups. Through the coordination of both scientific and social events, we facilitate networking and knowledge exchange among researchers. Since 2013, we have organized an annual chemistry symposium, which is held on the first Friday of December.<sup>[1]</sup>



Fig. 1. Back, from left to right: Mahsha Parvizian, Tzu-Chin Chang Chien, Elinor Morris, Andreas Ostertag, Joël Wellauer, Bradley Higginson, John Coats, Ilse Friedländer. Front, from left to right: Charlotte Kress, Salome Heim, Dorothee Wagner, Gladwin Suryatin Alim, Livia Müller, Elizaveta Maksimova, Anton Kudashev.

### PCC Christmas Symposium Basel 2023

Continuing the success of last year's edition, which covered the entire day for the first time, we invited five international and national keynote speakers.<sup>[2]</sup> The program also featured four concise talks from graduate and postgraduate students, along with a lively poster session. The 130 participants were composed from doctoral and post doctoral researchers, professors and undergraduate students which actively engaged in discussions after all talks. The symposium was chaired by C. Kress, S. Heim, J. Wellauer, T. Chang Chien, I. Friedländer, G. Suryatin Alim, A. Huber, A. Ostertag and D. Wagner.

As a first keynote speaker of this year's Christmas Symposium we welcomed **Prof. Dr. Helma Wennemers** (ETH Zurich) to the University of Basel, where she first started her own research group. She presented the progress of her work, starting from the fundamental question whether peptides can serve as effective asymmetric catalysts. The successful stereoselective catalysis, related mechanistic studies and structural investigations of the peptide catalysts positively answered the initial question.<sup>[3–9]</sup>

**Prof Dr. Kenneth Wärnmark** (Lund University) gave a talk on recently developed photoactive iron *N*-heterocyclic carbene complexes starting the story with the first luminescent iron(III) complex.<sup>[10–12]</sup> During his presentation, he discussed the integration of these environmentally abundant metal complexes into dye-sensitized solar cells<sup>[13]</sup> and their diverse applications in base-promoted homolytic aromatic substitution and photoredox reactions.<sup>[14,15]</sup>

**Prof. Dr. Daryl Yee** (EPF Lausanne) shared insights into additive manufacturing of advanced functional materials. He highlighted the use of simple chemistries and the ability to precisely manufacture the material structure. The integration of polymer additive manufacturing with various materials<sup>[16]</sup> can aid in developing new technologies. For instance, cancer treatment devices could benefit from this integration.<sup>[17]</sup>

**Dr. Sarah Lovelock** (University of Manchester) introduced a one-pot biocatalytic approach for the production of therapeutic oligonucleotides containing modified nucleic acids. This method was demonstrated in the production of clinically relevant oligonucleotides. Additionally, the approach was calculated to be less resource and waste intensive compared to traditional synthesis methods.<sup>[18]</sup>

**Prof. Dr. Leif Hammarström** (Uppsala Universitet) closed the Symposium with an engaging talk on the significance of proton coupled electron transfer (PCET) in both, natural and artificial photosynthesis. He highlighted the recent experimental investigations into the free energy dependence of the PCET rate constant and emphasized the first example of Marcus inverted region behavior. Concluding his talk, he announced the finding of the first reported proton coupled energy transfer.<sup>[19–21]</sup>

The short talks were presented by **Camiel Kroonen**, **Dr. Yang Sun**, **Björn Pfund** and **Oleksandr Vyhivskiy**. In an engaging manner they shared their recent work in organic synthesis, biochemistry, photochemistry, and total synthesis.

### Poster Session and Prizes

During lunch, the poster session was kicked off with 24 active presenters. With contributions from different research groups within the entire Chemistry Department, Basel and a contribution from the University of Mainz, the session was truly interdisciplinary and accompanied by vivid discussions. Three poster prizes sponsored by the youngSCS were awarded to *Maria-Sophie Bertrams*, *Nina Arnosti* and *Elinor Morris*. The winners were chosen by a jury composed of *Prof. M. Delley*, *Prof. C. Sparr*, *Prof. O. S Wenger* and *E. Maksimova*.

Since 2021, the departmental PhD prize is awarded during the Christmas Symposium, where the most excellent doctoral theses from the previous year are rewarded. Congratulations to the winners *Dr. L. Schmid* and *Dr. E. Sidler* for their outstanding work.



Fig. 2. Impression from the lunch poster session.



Fig. 3. Group Picture with the participants of the symposium.

### Acknowledgments

The authors express their gratitude to the Department of Chemistry, the Ressort Nachwuchsförderung at the University of Basel, Merck, and youngSCS for providing funding for the Christmas Symposium. Special thanks to Ana-Maria Jurić for capturing the pictures. The Christmas Symposium would not be possible without the help of volunteers, the administration and the facility team of the department.

Received: January 25, 2024

- [1] P. Burch, T. R. Eaton, J. Hoecker, M. Gantenbein, L. Jundt, M. Rickhaus, *CHIMIA* **2013**, 67, 744, <https://doi.org/10.2533/chimia.2013.744>.
- [2] M. Bina, S. Capomolla, J. Coats, A. D'Addio, S. Heim, A. Huber, W. Jauslin, C. Kress, A. Kudashev, A. Ostertag, J. Peng, G. Persiani, B. Pfund, P. S. Rieder, C. Seno, D. Wagner, J. Wellauer, *CHIMIA* **2023**, 77, 73, <https://doi.org/10.2533/chimia.2023.73>.
- [3] P. Krattiger, R. Kovasy, J. D. Revell, S. Ivan, H. Wennemers, *Org. Lett.* **2005**, 7, 1101, <https://doi.org/10.1021/ol0500259>.
- [4] M. Wiesner, J. D. Revell, H. Wennemers, *Angew. Chem. Int. Ed.* **2008**, 47, 1871, <https://doi.org/10.1002/anie.200704972>.
- [5] F. Bächle, J. Duschmalé, C. Ebner, A. Pfaltz, H. Wennemers, *Angew. Chem. Int. Ed.* **2013**, 52, 12619, <https://doi.org/10.1002/anie.201305338>.
- [6] J. Duschmalé, S. Kohrt, H. Wennemers, *Chem. Commun.* **2014**, 50, 8109, <https://doi.org/10.1039/c4cc01759e>.
- [7] C. E. Grünenfelder, J. K. Kisunzu, H. Wennemers, *Angew. Chem. Int. Ed.* **2016**, 55, 8571, <https://doi.org/10.1002/anie.201602230>.
- [8] T. Schnitzer, H. Wennemers, *J. Am. Chem. Soc.* **2017**, 139, 15356, <https://doi.org/10.1021/jacs.7b06194>.
- [9] C. Rigling, J. K. Kisunzu, J. Duschmalé, D. Häussinger, M. Wiesner, M. O. Ebert, H. Wennemers, *J. Am. Chem. Soc.* **2018**, 140, 10829, <https://doi.org/10.1021/jacs.8b05459>.

- [10] P. Chábera, K. S. Kjaer, O. Prakash, A. Honarfar, Y. Liu, L. A. Fredin, T. C. B. Harlang, S. Lidin, J. Uhlig, V. Sundström, R. Lomoth, P. Persson, K. Wärnmark, *J. Phys. Chem. Lett.* **2018**, 9, 459, <https://doi.org/10.1021/acs.jpclett.7b02962>.
- [11] P. Chábera, Y. Liu, O. Prakash, E. Thyryhaug, A. El Nahhas, A. Honarfar, S. Essén, L. A. Fredin, T. C. B. Harlang, K. S. Kjaer, K. Handrup, F. Ericson, H. Tatsuno, K. Morgan, J. Schnadt, L. Häggström, T. Ericsson, A. Sobkowiak, S. Lidin, P. Huang, S. Styring, J. Uhlig, J. Bendix, R. Lomoth, V. Sundström, P. Persson, K. Wärnmark, *Nature* **2017**, 543, 695, <https://doi.org/10.1038/nature21430>.
- [12] K. S. Kjaer, N. Kaul, O. Prakash, P. Chábera, N. W. Rosemann, A. Honarfar, O. Gordivska, L. A. Fredin, K. E. Bergquist, L. Häggström, T. Ericsson, L. Lindh, A. Yartsev, S. Styring, P. Huang, J. Uhlig, J. Bendix, D. Strand, V. Sundström, P. Persson, R. Lomoth, K. Wärnmark, *Science* **2019**, 363, 249, <https://doi.org/10.1126/science.aau7160>.
- [13] L. Lindh, O. Gordivska, S. Persson, H. Michaels, H. Fan, P. Chábera, N. W. Rosemann, A. K. Gupta, I. Benesperi, J. Uhlig, O. Prakash, E. Sheibani, K. S. Kjaer, G. Boschloo, A. Yartsev, M. Freitag, R. Lomoth, P. Persson, K. Wärnmark, *Chem. Sci.* **2021**, 12, 16035, <https://doi.org/10.1039/d1sc02963k>.
- [14] L. H. M. de Groot, A. Ilic, J. Schwarz, K. Wärnmark, *J. Am. Chem. Soc.* **2023**, 145, 9369, <https://doi.org/10.1021/jacs.3c01000>.
- [15] A. Ilic, J. Schwarz, C. Johnson, L. H. M. de Groot, S. Kaufhold, R. Lomoth, K. Wärnmark, *Chem. Sci.* **2022**, 13, 9165, <https://doi.org/10.1039/d2sc02122f>.
- [16] M. A. Saccone, R. A. Gallivan, K. Narita, D. W. Yee, J. R. Greer, *Nature* **2022**, 612, 685, <https://doi.org/10.1038/s41586-022-05433-2>.
- [17] D. W. Yee, S. W. Hetts, J. R. Greer, *ACS Appl. Mater. Interfaces* **2021**, 13, 41424, <https://doi.org/10.1021/acsami.1c05209>.
- [18] E. R. Moody, R. Obexer, F. Nickl, R. Spiess, S. L. Lovelock, *Science* **2023**, 380, 1150, <https://doi.org/10.1126/science.add5892>.
- [19] B. P. Ringard, Z. Tao, G. A. Parada, L. F. Cotter, S. Hammes-Schiffer, J. M. Mayer, L. Hammarström, *Science* **2022**, 377, 742, <https://doi.org/10.1126/science.abq5173>.
- [20] R. Tyburski, T. Liu, S. D. Glover, L. Hammarström, *J. Am. Chem. Soc.* **2021**, 143, 560, <https://doi.org/10.1021/jacs.0c09106>.
- [21] G. A. Parada, Z. K. Goldsmith, S. Kolmar, B. P. Ringard, B. Q. Mercado, L. Hammarström, S. Hammes-schiffer, J. M. Mayer, *Science* **2019**, 475, 471, <https://doi.org/10.1126/science.aaw4675>.