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## Chemical Society Annual Report to the EuCheMS Division of Chemical Education for 2018-2019<sup>1</sup>

### 1. Abstract

Even though we have very little man- and womanpower in chemistry education in Austria, we are quite successful in initiating and organising events and continuing development programmes for Chemistry Teachers. We are active in publishing papers in German and English for teachers and scholars as well as participating in national and international conferences. In September 2019, we organise and host the biggest German speaking annual conference on Chemistry and Physics Education (GDCEP) together with the conference on Biology Education (FdDB) in Vienna.

### 2. National educational policy

In Austria, we are working since spring 2019 on the development of new national curricula for all subjects in primary and lower secondary schools. Anja Lembens was commissioned by the Austrian Federal Ministry of Education, Science and Research to build a group to work on the syllabus for chemistry. The aim is to focus more on competencies to deal with and value knowledge than on learning and reproducing content.

### 3. Events in chemical education

- Winter term 2018 and summer term 2019: Fachfremd Chemie unterrichten (teaching chemistry for non-specialist teachers) (CPD-course) 14 half-days in Vienna
- Winter term 2018: Mysteries in Practice (MiP) (CPD-course with a small community of practice working on designing, implementing and evaluating inquiry-based chemistry classes) in Vienna
- 27.-31.08.2018: Sommerschule der Chemie (Summer School for Chemistry Teachers) in Salzburg
- 26.09.2018: Fachdidaktiktag Chemie (Day of Chemistry Didactics) in Klagenfurt
- 25.02.-28.02.2019: Plus Lucis Fortbildungswoche (in-service science teacher education courses) in Vienna
- 24.-27.04.2019: ChemielehreInnenkongress (chemistry teacher congress) in Vienna

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<sup>1</sup> June 2018 - May 2019, all levels of chemistry education: primary, secondary schools, universities, LLL, general and vocational education.

#### 4. Activities of the National Chemical Society

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#### 5. Publications

Since several years we publish a journal for chemistry and physics teachers with four issues per year (Plus Lucis) and the team of the Austrian Educational Competence Centre Chemistry contributes to every issue (four per year) of the chemistry teacher journal *Chemie & Schule*.

Beneath you find all publications to which I contributed between June 18 and May 19. I do not know whether you want me to list all publications, which people working in chemistry education in Austria have published in this period. If you want me to do that, please contact me again.

Lembens, A. (Hrsg.) (2019). *Mahlzeit. Plus Lucis. Zeitschrift des Vereins zur Förderung des physikalischen und chemischen Unterrichts*. 1, 2019

Lembens, A., Hammerschmid, S., Jaklin-Farcher, S., Nosko, C. & Reiter, K. (2019). Conceptual Coherence Maps als Instrument zur Analyse von Schulbüchern. In: C. Maurer (Hrsg.), *Naturwissenschaftliche Bildung als Grundlage für berufliche und gesellschaftliche Teilhabe. Gesellschaft für Didaktik der Chemie und Physik, Jahrestagung in Kiel 2018 (Vol. 39)*. Kiel: IPN. S. 161-164.

Hofer, E. & Lembens, A. (2019). Veränderung von Vor- und Einstellungen zu Forschendem Lernen im Rahmen eines Fortbildungsprogramms In: C. Maurer (Hrsg.), *Naturwissenschaftliche Bildung als Grundlage für berufliche und gesellschaftliche Teilhabe. Gesellschaft für Didaktik der Chemie und Physik, Jahrestagung in Kiel 2018 (Vol. 39)*. Kiel: IPN. S. 500-503.

Spitzer, P. & Lembens, A. (2019). Die chemiebezogene Berufswahl von Lernenden im Quer- und Längsschnitt. In: C. Maurer (Hrsg.), *Naturwissenschaftliche Bildung als Grundlage für berufliche und gesellschaftliche Teilhabe. Gesellschaft für Didaktik der Chemie und Physik, Jahrestagung in Kiel 2018 (Vol. 39)*. Kiel: IPN. S. 436-439.

Nosko, C., Jaklin-Farcher, S., Lembens, A. & Reiter, K. (2019). Von nackten Eiern und unsichtbaren Gasen. Oder: „Säuren und Basen“ in der Primarstufe. In: *Erziehung und Unterricht* 169, 3-4. 375-382.

Lembens, A. & Abels, S. (2018). Lerngelegenheiten gestalten, die der Diversität der Lernenden Rechnung tragen. In: Rehm, M. (Hrsg.). *Wirksamer Chemieunterricht*. Schneider Verlag. Hohengehren, S. 65-77.

Lembens, A. & Reiter, K. (2018). Pre-service Chemistry Teachers' Conceptions of How to Teach 'Acids and Bases'. In: Finlayson, O., McLoughlin, E., Erduran, S. & Childs, P. (Gen. Eds.), *E-Book Proceedings of the ESERA 2017 Conference: Research, Practice and Collaboration in Science Education*. Dublin, Ireland: European Science Education Research Association. p. 1660-1668.

Hofer, E. & Lembens, A. (2018). Implementing aspects of inquiry-based learning in secondary chemistry classes: a case study. In: Finlayson, O., McLoughlin, E., Erduran, S. & Childs, P. (Gen. Eds.), *E-Book Proceedings of the ESERA 2017 Conference: Research, Practice and Collaboration in Science Education*. Dublin, Ireland: European Science Education Research Association. p. 2344-2353.

Hofer, E. & Lembens, A. (2018). The Bumpy Road from Investigation to Knowledge. In: Eilks, I., Markic, S. & Ralle, B. (Eds.) *Building Bridges across Disciplines for Transformative Education and a Sustainable Future. A collection of invited papers inspired by the 24th Symposium on Chemistry and Science Education held at the University of Bremen, June 1-3, 2018*. p. 307-314.

Spitzer, P. & Lembens, A. (2018). Protein shakes – a relevant topic for chemistry!?. In: Eilks, I., Markic, S. & Ralle, B. (Eds.) Building Bridges across Disciplines for Transformative Education and a Sustainable Future. A collection of invited papers inspired by the 24th Symposium on Chemistry and Science Education held at the University of Bremen, June 1-3, 2018. p. 315-320.

Hofer, E., Abels, S. & Lembens, A. (2018). Inquiry-based learning and secondary chemistry education – a contradiction? In: RISTAL, 1, p. 51–65. doi:10.23770/rt1811

Nosko, C., Jaklin-Farher, S. & Lembens, A. (2018). „Das Gegenteil von sauer ist süß“ – Chemische Aspekte in Sachunterrichtsschulbüchern der Primarstufe. In: Progress in Science Education. 1(2), S. 1-9. doi:10.25321/prise.2018.808.

## 6. Liaison with the chemical industry

There is no cooperation between the didactics in pre-service chemistry teacher education and industry.

## 7. International and European initiatives

09.-12.07.2018: The Summer School ‘Methoden der Forschung in Fachdidaktik und Bildungswissenschaft’ (research methods in didactics and educational sciences) took place at Spital am Pyhrn. This summer school is organised since 2009 by the Austrian Educational Competence Centres (AECC) Biology, Chemistry and Physics on a rotating basis. 2018 Anja Lembens (Head of the AECC Chemistry) was again responsible to organize and to chair the Summer school. The summer school is open for all junior researchers working on their PhD or habilitation thesis. Working languages are German and English.

## 8. Other events and activities

Ever since in 2008 the first professorship for chemistry education in Austria was filled in at the University of Vienna we still have only this single unlimited full professorship for chemistry education in Austria.

In May 2018, the Faculty of Chemistry at the University of Vienna decided to announce the position of a temporary professorship for chemistry education. Only one qualified person applied for this position. Because of the time limitation there was no appointments committee installed and so the dean of the faculty decided to hire this only candidate. In April 2018 Dr. Katharina Groß took up her position.

## 9. Name of delegate and deputy

Univ.-Prof. Dr. Anja Lembens

## 10. Contact details of delegates

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## 11. CV of delegate

<http://aeccc.univie.ac.at/ueber->

[uns/team/professur/user/lembena8/inum/1333/backpid/62010/](http://aeccc.univie.ac.at/ueber-uns/team/professur/user/lembena8/inum/1333/backpid/62010/)