

# LIEBIG LECTURESHIP

der Liebig-Vereinigung für Organische Chemie

in der Gesellschaft Deutscher Chemiker

October 2019

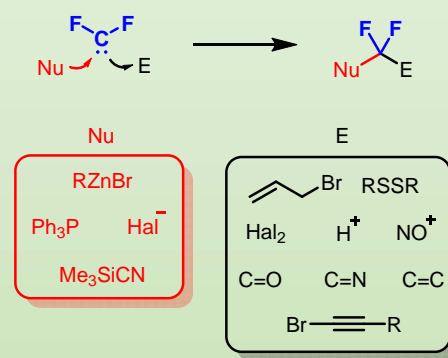
Alexander Dilman

Zelinsky Institute of Organic Chemistry



## Methods for the Synthesis of Organofluorine Compounds: from Difluorocarbene to Photocatalysis

A novel concept for the synthesis of *gem*-difluorinated compounds from three components — difluorocarbene, nucleophile, and electrophile was proposed [1]. Performing consecutive bond-forming reactions by successive attachment of nucleophile and electrophile to difluorocarbene provides opportunity for the synthesis of wide variety of organofluorine compounds. A process involving insertion of difluorocarbene into the carbon-zinc bond followed by coupling of difluorinated organozincs with carbon- and heteroatom-centered electrophiles was developed [2-5]. An efficient method for nucleophilic difluoromethylation of  $\pi$ -electrophiles (aldehydes, azomethines, Michael acceptors) based on the reaction of difluorinated phosphorus ylide was elaborated [6-8]. Most recent work involves the application of photoredox catalysis relying on activation of C-P and C-I bonds promoted by visible light [9-14].



- [1] *Acc. Chem. Res.* 2018, 51, 1272–1280. [2] *Org. Lett.* 2013, 15, 917–919. [3] *J. Org. Chem.* 2014, 79, 818–822. [4] *J. Fluorine Chem.* 2015, 171, 97–101. [5] *J. Org. Chem.* 2018, 83, 478–483. [6] *Org. Lett.* 2014, 16, 6256–6259. [7] *Org. Lett.* 2016, 18, 3458–3461. [8] *Org. Lett.* 2017, 19, 5304–5307. [9] *Org. Lett.* 2016, 18, 996–999. [10] *J. Org. Chem.* 2017, 82, 745–753. [11] *J. Org. Chem.* 2017, 82, 12967–12974. [12] *Chem. Commun.* 2018, 54, 2236–2239. [13] *Chem. Commun.* 2019, 55, 1314–1317. [14] *Org. Lett.* 2018, 20, 840–843.



<b>München</b>	Monday	October 7 <sup>th</sup>
<b>Wuppertal</b>	Tuesday	October 8 <sup>th</sup>
<b>Düsseldorf</b>	Wednesday	October 9 <sup>th</sup>
<b>Münster</b>	Friday	October 11 <sup>th</sup>
<b>Würzburg</b>	Monday	October 21 <sup>th</sup>
<b>Bochum</b>	Wednesday	October 23 <sup>th</sup>
<b>Berlin</b>	Thursday	October 24 <sup>th</sup>
<b>Frankfurt</b>	Friday	October 25 <sup>th</sup>

Alexander Dilman was born in 1976 in Moscow, Russia. He received his Ph.D. degree from the Zelinsky Institute of Organic Chemistry in 2001 (with Prof. S. L. Ioffe) and then spent one year as a postdoctoral fellow in the group of Prof. H. B. Kagan at the Université Paris Sud, France. In 2003, he came back to the Zelinsky Institute and started independent work. In 2008, he completed habilitation studies, and in 2011, he became the head of a laboratory. Since 2018 he serves as a deputy director of the Zelinsky Institute. His current interests include the chemistry of organofluorine compounds and photocatalysis.

Die Liebig-Vereinigung für Organische Chemie richtete 1999 die Vortragsreihe "Liebig-Lectureship" für herausragende ausländische Vertreter der organischen Chemie ein. Sie wird an exzellente junge Wissenschaftler vergeben und führt die damit Ausgezeichneten an fünf oder mehr Forschungsinstitute ihrer Wahl.