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CONGRATULATIONS TO PROFESSOR ALBERT PADWA ON HIS 75th BIRTHDAY

The first time I met Albert Padwa was at the Pyramids in Egypt in December of 1992. We were both attending the Fourth Ibn Sina International Symposium on Pure and Applied Heterocyclic Chemistry organized in Cairo. While Al was presenting a plenary lecture on his latest research using cycloaddition cascade reactions for the synthesis of heterocycles, I was giving a poster on my PhD work on cycloaddition chemistry of reactive ketene intermediates that I had just completed a few weeks before at the University of Graz, Austria. At that time, I was looking for a postdoctoral position in the field of heterocyclic chemistry, so I took advantage of the bus ride back from the Pyramids to the hotel to make my move. Ultimately, I ended up spending 18 very stimulating months in Al Padwa's group at Emory University as a postdoctoral fellow during 1994-1996 working on Pummerer-promoted cyclization-cycloaddition cascades.

Today, Albert Padwa can be considered as one of the true giants in modern heterocyclic chemistry and therefore this special issue of *Heterocycles* dedicated in honor of his 75th birthday is very appropriate. Al Padwa's research activity, spanning a time period of more than 50 years, has resulted in over 700 publications. More than 220 PhD students and postdoctoral associates have received training under his guidance.

In fact, Albert Padwa did not start out as a heterocyclic chemist at all. Born and raised in New York City, he obtained both his B.A. and Ph.D. degree from Columbia University. From the fall of 1959 until the summer of 1962 he worked for his Ph.D. with Cheves Walling studying the internal hydrogen transfer reaction of organic hypohalides. This was a classical physical organic investigation involving radical chemistry and led to his first scientific publication more than 50 years ago (C. Walling, A. Padwa, *J. Am. Chem. Soc.*, **1961**, *83*, 2207).

Following a suggestion by Gilbert Stork, Al then moved to Madison, Wisconsin in 1962 to pursue postdoctoral work on photochemistry with Howard Zimmerman, studying the di- π methane photorearrangement of cyclohexadienones. The early 1960s was the golden age of organic mechanistic photochemistry and his research at Madison involved studying quantum yield measurements and the determination of the rates of the excited state reactions using kinetic measurements.

Albert Padwa's first independent position was at Ohio State University (1963-1966) where he continued to work in the area of mechanistic organic photochemistry, a theme which he also intensely pursued after his move to the State University of New York (SUNY) Buffalo in 1966, where he rose to the rank of full professor (1969). During the Buffalo years, Al's research group made their first contact with 1,3-dipoles (i.e., azomethine ylides) in the photochemical cleavage of aziridines. Importantly, he soon came to recognize the significance of these reactive intermediates for the synthesis of heterocycles, and ultimately abandoned the physical organic photochemistry program in his research group.

During the transition from mechanistic photochemistry to more synthetically oriented dipolar cycloaddition reactions also came the move from Buffalo to Emory University in Atlanta, Georgia, in 1979, at least in part as a result of the heavy snow storm that hit Buffalo in January of 1977 leading to faculty and students stranded at the chemistry department for three days. At Emory, Al immediately started a program dealing with rhodium(II)-carbenoid cycloaddition chemistry for the synthesis of heterocycles and natural products, the field for which is probably best known today in the heterocyclic chemistry community. In the 20 year period following these initial experiments, his lab achieved tremendous success in linking up rhodium(II) carbenoid-derived 1,3-dipolar cycloaddition chemistry with other subsequent transformations (so-called domino or cascade reactions). Numerous complex heterocyclic cores and natural products were generated by his team using these rhodium-catalyzed domino reactions.

In a more recent phase of research starting in 2000, the Padwa group has highlighted the usefulness of intramolecular Diels-Alder cycloaddition reactions involving 2-aminofurans as the key step in synthetically valuable cascade sequences. Up until today, his group continues to develop novel and innovative cascade reactions that undoubtedly will make their way into the textbooks of modern heterocyclic chemistry.

The scientific career of Albert Padwa is truly remarkable, spanning more than 50 years and involving research areas as diverse as physical organic photochemistry, reactive intermediates, 1,3-dipolar cycloaddition chemistry, and alkaloid synthesis. In a 2009 Perspective Article in *The Journal of Organic Chemistry* (2009, 74, 6421), Al Padwa has provided a personal account on how his various research projects and his academic career developed since the days starting out as an undergraduate student at Columbia University in 1955. This article does not only provide a detailed review of his scientific projects, but also in my opinion is a “must read” for young scientists entering a career in academia.

What I truly admire about Al Padwa -apart from his scientific achievements- is the myriad of nonprofessional activities he is able to work into his already very busy schedule. Most notorious for everybody who knows Al are his quite serious mountaineering adventures, but additionally include playing competitive racquet ball, the creation of “rust-art” sculptures and collecting “mobiles” from around the globe. Al Padwa has been and continues to be a great advisor and mentor to me and his other students and postdocs, and whenever we meet at conferences I genuinely enjoy our conversations.

Dear Al, please enjoy this special issue of *Heterocycles*, dedicated to your significant contributions to organic and heterocyclic chemistry over the past five decades. Before your 75th birthday, I wish you many more great achievements in chemistry, mountain adventures and good health!



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C. Oliver Kappe is Professor of Organic Chemistry and Director of the Christian Doppler Laboratory for Microwave Chemistry (CDLMC) at the University of Graz, Austria. He received his diploma- (1989) and his doctoral (1992) degrees in organic chemistry from the University of Graz where he worked with Prof. Gert Kollenz on cycloaddition and rearrangement reactions of acylketenes. After periods of postdoctoral research work on reactive intermediates and matrix isolation spectroscopy with Prof. Curt Wentrup at the University of Queensland in Brisbane, Australia (1993-1994) and on synthetic methodology/alkaloid synthesis with Prof. Albert Padwa at Emory University in Atlanta, USA (1994-1996), he moved back to the University of Graz in 1996 to start his independent academic career. He obtained his "Habilitation" in 1998 in organic chemistry, was promoted to Associate Professor in 1999, and currently is Professor of Organic Chemistry at the University of Graz. In 2003 he spent a sabbatical at the Scripps Research Institute (La Jolla, USA) in the group of Prof. K. Barry Sharpless and more recently has been visiting professor at the Tokyo Institute of Technology in Japan (2008) and spent sabbatical time at the Sanford-Burnham Institute for Medical Research in the USA (2010).

The co-author of more than 250 publications, his main current research interests focus on process intensification in organic synthesis using microwave and continuous flow techniques.