

ALAIN CHARLY TAGNE KUATE, PhD

Senior Synthetic and Analytical Chemist

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SKILLS HIGHLIGHT

- Organic and organometallic synthesis, ligand design, synthetic methodology and isolation of materials of high purity, catalyst screening, full structural characterization of new materials.
- Handling air sensitive compounds: Glove box, vacuum Schlenk line in inert atmosphere
- Profound knowledge in the development of metallocene-based phosphine ligand for bond activation and catalytic organic transformation (cross coupling, hydrogenation, hydrosilylation, metathesis)
- Experience in polymer synthesis by ring opening polymerization (ROP)
- Synthetic route innovation, optimization of the reaction conditions and mechanism investigations

INSTRUMENTAL ANALYSIS

Nuclear Magnetic Resonance Spectroscopy (NMR)
Single Crystal X-ray Diffraction (Bruker)
Mass Spectrometry (MALDI-MS)
Gas Chromatography – Mass Spectrometry (GC-MS)
High Phase Liquid Chromatography (HPLC)

Fourier Transform Infrared Spectroscopy (FTIR)
Ultraviolet Visible Spectroscopy (UV-Vis)
Liquid Chromatography – Mass Spectrometry (LC-MS)
Gel Permeation Chromatography (GPC)
Differential Scanning Calorimetry (DSC)

STRENGTH AND EXPERTISE

Project Development
Laboratory Management
Supervision of Students and Technicians
Organometallic Catalyst Development
Catalyst Screening
Structure-Properties Relationship

Laboratory Safety
Synthetic Protocol Innovation
Theoretical Calculations (DFT)
Asymmetric Synthesis
Transition Metal Coordination
Organic Synthesis

Organometallics Synthesis
Inorganic Functional Material
Polymer Material (ROP)
Cross-cultural Skills
Self-Starter and Meet Timelines
Bond Activation / Molecules Fixation

RESEARCH AND PROFESSIONAL EXPERIENCE

07/2019 – Now Senior Synthesis Chemist, AccuStandard Inc., New Haven, Connecticut, USA

Task description

- Synthesis of quality pure organic raw materials (small to large scale) for the manufacturing of Certified References Materials (CRMs) and of References Materials (RMs).
- Independent management of multiple projects related to the synthesis of PCBs, PBDEs, Dioxins, PAHs, PFAs, PCNs, Phthalates, Pesticides, Furans.
- Synthetic methods and analytical results proper documentation through an online file maker.
- Cross collaboration with other departments (QC and Production) relative to the final pure materials
- Results and data presentation in weekly meeting
- Custom formulation and custom synthesis to satisfied customer needs.

08/2014 – 06/2019 Senior Research Scientist, DFG Postdoctoral Fellow, Rutgers University – Newark (Prof. Frieder Jäkle)

Task description

- Support the effective and efficient operations and maintenance of research equipment
- Conduct research on ferrocene-based Lewis acids and Lewis pairs in particular systems based on phosphine donor moieties and Lewis acid acceptor (B, Hg) for catalytic organic transformations
- Support the writing and submission of manuscript resulting from research, which include, but is not limited to, writing, editing, proofreading, discussing and analyzing
- Prepare and present the results from research at international scientific conferences
- Support the creation of data safety sheets and SOPs for hazardous materials and processes

03/2010 – 07/2014 Research and Development Scientist, Alexander von Humboldt (AvH) Postdoctoral Fellow, Technical University of Braunschweig (Prof. Dr. Matthias Tamm)

Task description

- Developed new efficient palladium catalysts based on trocicenyl phosphines for Suzuki-Miyaura and Buchwald-Hartwig cross coupling reactions of sterically hindered aryl halides
- Synthesized and fully characterized siloxane-trocicenophanes and studied of their thermal and anionic ring opening polymerization behavior
- Managed the cooperation platform with the companies Sigma Aldrich and Tokyo Chemical Industry (TCI) for the commercialization of the discovered palladium catalyst, including regular meetings with the contact persons in the company

09/2004 – 10/2005 Served as Physic and chemistry teacher, secondary high school, Yaounde

TEACHING EXPERIENCE

01/2017 – 06/2017 General Chemistry Recitations, Part Time Lecturer, Rutgers University – Newark, USA
02/2016 – 06/2018 Organometallic Chemistry, Lecturer, University of Dschang, Cameroon
02/2016 – 06/2018 Main Group Element Chemistry, Lecturer, University of Dschang, Cameroon
02/2011 – 07/2014 Advanced Inorganic and Analytical Chemistry and Labs, TU Braunschweig, Germany

EDUCATION

04/2006 – 12/2009 PhD (Organometallic Chemistry), Advisor Prof. Dr. Klaus Jurkschat, Technical University of Dortmund, Germany; topic of the dissertation: “Organostannyl-Substituted Crown Ethers as Ditopic Receptors for the Simultaneous Complexation of Inorganic Salts”
10/2002 – 06/2004 DIPES II (High School Teacher Certification), University of Yaounde I
10/2001 – 09/2003 MSc. (Inorganic Chemistry), University of Yaoundé I
10/1997 – 09/2001 BSc. (Chemistry), University of Yaoundé I

AFFILIATION

- The American Chemical Society (ACS)
 - The German Chemical Society (GDCh)
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HONORS AND AWARDS

08/2014 – 07/2017 Postdoctoral Fellow, German Research Foundation (DFG)
02/2011 – 07/2013 Postdoctoral Fellow, Alexander von Humboldt Foundation (AvH)
04/2006 – 09/2009 Graduate Student Fellow, German Academic Exchange Services (DAAD)
2010 Participation as young researcher at the „Falling Walls Conference“ 2010 in Berlin
2009 Participation as young researcher at the 59th Lindau Nobel Laureate Meeting 2009

SELECTED PAPERS

- *Diferrocenylmercury-Bridged Diphosphine: A Unique Chiral, Ambiphilic, and Redox-active Bidentate Ligand*, Alain C. Tagne Kuate, Roger. A. Lalancette, Frieder Jäkle, *Angew. Chem. Int. Ed.* **2018**, 57, 6552-6557.
 - *Phosphane-Functionalized Cycloheptatrienyl-Cyclopentadienyl Titanium Sandwich Complexes: Phosphorus Ligands with an Integrated Reducing Agent for Pd(0) Catalyst Generation*, Alain C. Tagne Kuate, Soheila Sameni, Matthias Freytag, Peter G. Jones and Matthias Tamm, *Angew. Chem.* **2013**, 125, 8800–8804; *Angew. Chem. Int. Ed.* **2013**, 52, 8638–8642
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SELECTED TALKS

- Ferrocene-based Planar Chiral Lewis Pair Systems”, Pacificchem, **December 15–20, 2015**, Honolulu, Hawaii
 - Phosphane Ligands with an Integrated Reducing Agent for Pd(0) Catalyst Generation”, XIIth Ferrocene Colloquium, **February 17–18, 2014**, Innsbruck, Austria
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