



Der Vorsitzende des Promotionsausschusses

EINLADUNG

Hiermit lade ich ein zum öffentlichen Promotionskolloquium von

Herrn M.Sc. Julian Messelberger

Koordinationschemie
(Prof. Dr. Dominik Munz)

am

Freitag, 23. Januar 2026, 15:00 Uhr s.t.

per Videokonferenz: Link für MS Teams: <http://bit.ly/3YyUlz5>

Raum für die Prüfung: Kleiner Seminarraum II,
Gebäude C4.3, Raum -1.02/Untergeschoss

Thema der Dissertation:

Terminal, Formally Multiply Bonded Complexes of Late Transition Metals and Heavy *p*-Block Elements

N-heterocyclic carbenes have become key ligands in modern coordination and organometallic chemistry due to their exceptional electronic flexibility. In this thesis, their role in stabilizing unusual bonding situations, low-valent metal centers, and open-shell species is explored. Particular emphasis is placed on carbene dimers and their redox behavior under strictly proton-free conditions. Beyond fundamental aspects, carbenes are applied as tools for the construction of low-valent and formally multiply bonded metal complexes. The work focuses on palladium and lead systems supported by saturated NHC-based pincer scaffolds. Exceptionally stable low-valent Pd macromolecules and electron-rich Pb complexes are obtained and investigated. A reversible reduction leads to the first neutral, zero-valent Pd metalloporphyrin, enabling access to low-valent metalloporphyrins in nonpolar media.

Saarbrücken, 9. Januar 2026



Prof. Dr.-Ing. Georg Frey