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## **Reactivity of cobalt(II)-dichalcogenide complexes: correlation between redox conversion and ligand-field strength**

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### **Citation**

Marvelous, C. (2022, July 5). *Reactivity of cobalt(II)-dichalcogenide complexes: correlation between redox conversion and ligand-field strength*. Retrieved from <https://hdl.handle.net/1887/3421554>

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**Note:** To cite this publication please use the final published version (if applicable).

# Curriculum Vitae

Christian Marvelous was born in Malang, East Java, Indonesia, on the 9<sup>th</sup> of March 1994. In August 2012, he moved to Bandung, West Java, to pursue a BSc in chemistry at Institut Teknologi Bandung (ITB). During his studies, he was involved in several extracurricular activities such as the chemistry student association ‘HMK ‘AMISCA’ ITB’, as well as being a leader of the chemistry class of 2012. In July 2016 he obtained a BSc degree *cum laude* with a thesis entitled “Novel Cobalt(II)-Mannich Base Compound as A New Potent Anticancer” under the supervision of Dr. Irma Mulyani and Dr. Deana Wahyuningrum. After finishing his BSc, he started fast-track MSc studies in Inorganic Chemistry at the same university. In January 2017, he started his research internship at University of Groningen, The Netherlands, under the supervision of Dr. Bart Crielgaard with the thesis entitled “Synthesis, Characterization, and Cellular Interactions of Iron Oxide Nanoparticles and Gold-Coated Iron Oxide Nanoparticles”. In October 2017, he graduated *cum laude* and received the best poster award for the final thesis from Chemistry Department Institut Teknologi Bandung.

On the 11<sup>th</sup> of April 2018, he started his PhD in the Metals in Catalysis, Biomimetics, and Inorganic Materials group at Leiden University under supervision of Prof. Dr. Elisabeth Bouwman and Prof. Dr. Célia Fonseca Guerra. During his PhD studies, he supervised several practical courses, six *Leren Onderzoeken 1* students, two BSc students, and one MSc student. He followed a number of courses offered by the Holland Research School of Molecular Chemistry (HRSMC) as well as the Graduate School of Leiden University, including “Scientific Conduct”, “Anxiety, Stress, and Courage”, “Physical Methods in Inorganic Chemistry”, “Molecular Modelling”, and “High Impact Writing”.

The results reported in this thesis were presented at several conferences as listed below:

**Poster Presentation** Netherlands’ Chemistry and Catalysis Conferences (NCCC) XX – XXI, 2019–2020, Noordwijkerhout, The Netherlands

**Poster Presentation** HRSMC Symposium, 2019, Amsterdam, The Netherlands

**Poster Presentation** NWO CHAINS Conference 2019, Veldhoven, The Netherlands

**Oral Presentation** NWO CHAINS Conference 2021, Online, The Netherlands

**Oral Presentation** HRSMC Symposium, 2022, De Duif, Amsterdam, The Netherlands

**Oral Presentation** Netherlands' Chemistry and Catalysis Conference XXIII, 2022, Noordwijkerhout, The Netherlands

# List of Publications

“Cobalt(II)-disulfide compounds with the unusual  $\text{PF}_2\text{O}_2^-$  anion. Ligand-dependent redox conversion to a cobalt(III)-thiolate complex”

F. Jiang<sup>#</sup>, C. Marvelous<sup>#</sup>, A.C. Verschuur, M.A. Siegler, S.J. Teat, and E. Bouwman, *Inorganica Chimica Acta*, 2022, **535**, 120880.

<sup>#</sup>Equal contributions

## Chapter 2

“Probing The Redox Interconversion of Co(II)-disulfide / Co(III)-thiolate Complexes: The Effect of Ligand Field Strength”

C. Marvelous, L. de Azevedo Santos, M.A. Siegler, C. Fonseca Guerra, and E. Bouwman, *Dalton Transactions*, 2022, **51**, 8046-8055

## Chapter 3

“Cleaner and Stronger: How 8-quinolinolate Facilitates Formation of Co(III)-thiolate from Co(II)-disulfide Complexes”

C. Marvelous, L. de Azevedo Santos, M.A. Siegler, C. Fonseca Guerra, and E. Bouwman, *submitted*.

## Chapter 4

“Redox-conversion Reactivity of The Chalcogen Family: Selenium vs Sulfur”

C. Marvelous, M.A. Siegler, C. Fonseca Guerra, and E. Bouwman, *manuscript in preparation*.

## Chapter 5

“Structural Investigations and Reactivity of Cobalt(II)-Disulfide Complexes”

C. Marvelous, M.A. Siegler, and E. Bouwman, *manuscript in preparation*.



# Acknowledgements

The past four years are the most challenging years yet the most sensational and unforgettable years of my life. Being more than ten thousand kilometers away from home, I have grown personally as well as scientifically, and I owe that to people with whom I interacted during the four years of my PhD.

First and foremost, I would like to express my gratitude to Prof. Dr. Elisabeth Bouwman and Prof. Dr. Célia Fonseca Guerra for the opportunity to perform this PhD study. Their scientific guidance has shaped me to be meticulous and keep pushing myself to become a better scientist. The most valuable thing that I have learned from Lies and Célia is how important it is to be critical of my own work. I would like to thank Dr. Maxime A. Siegler, as, without his contribution, this thesis would not contain as many crystal structures as it does now. I am also grateful to Dr. Trevor Hamlin and Dr. Lucas de Azevedo Santos, for their help with DFT studies as well as their scientific contributions to the chapters. I sincerely appreciate Prof. Dr. Sylvestre Bonnet and Dr. Dennis Hetterscheid for the scientific discussions and suggestions during this study. I thank Fons and Karthick for their assistance in operating the NMR spectrometers.

To my previous office mates Feng Jiang and Hans de Bruijn, thank you for all the fun in the lab as well as outside the lab (having dinner and playing games together was fun!). To my current office mates Ashok, whom I can talk to about everything; Dennis who kindly provided the *samenvatting* for me; and Irene who is always bubbly; my gratitude for all the jokes and every discussion that we had, whether it was a serious scientific discussion or just some random topic, I had my share of fun with you guys. Thank you to Sipeng, not only for the ESI-MS measurements but also for the crazy comments and ideas that made me laugh during coffee breaks. Furthermore, to all students whom I supervised, it was great to work with you. Thank you to all the people from MCBIM for making these four years wonderful: Andrea, Aleksandar, Erik, Michael, Anja, Corjan, Ehider, David, Chengyu, Agnese, Valeriia, Vasiliki, Liyan, Ramu, Xuequan, Selda, Sina, Ludovic, Aswin, Yurii, Lan, Wessel, Bas, Daan, Michiel, Nicole, Silvia, Sjoerd, Dana, Kyra, Ross, Phebe, Marleen, Shengxiang, and others which I cannot possibly mention here.

In 2020, when the COVID-19 hit hard and we had to be in a lockdown situation, there were friends who accompanied me even when they are in other parts of the world. I am sincerely grateful for them: Felix, Eunike, Dhimaz, Donny, Novita, Farhan, Della, Zaid, Siwi, Daniel, Danang, Fauzi, Banyu, Rachman, Yovin, Mora, and Yasifa. Special thanks to my best friends Jack and Nicodemus for weekly online meetings and trying to do podcasts and business, even in these hard times.

To my family, their endless support and never-ending love mean a lot to me. Talking to them every weekend motivates me to finish this long journey to my PhD degree. Finally, to Veronica Grace, thank you for being with me since my undergraduate studies and for your encouragement and love for the past (almost) 9 years. I am delighted to have you in my life.

Christian Marvelous