

Department of Chemistry

Departmental Seminar:

Chemistry Education Research Month

You are cordially invited to a virtual lecture presented by



Dr. Christine Mundy

Department of Chemistry, University of Pretoria

Date: Friday, 27th August 2021
Time: 10:30 – 11:20
Venue: [Google Meet](#)
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PhD talk: Addressing barriers to understanding emission spectroscopy for novice chemistry students

Spectroscopes show the quantization of light from excited compounds, introduce spectral signatures and help students understand modern models of the atom. Spectroscopic instruments can be costly and complex, therefore a self-made and low-cost Mini Spec was an ideal way for first-year students to learn about emission lines and spectroscopy.

Design-based research was used over five cycles to devise and refine a laboratory exercise that included the construction of a Mini Spec, the observation of discrete and continuous spectra from readily available light sources, and guided interpretations in a report sheet.

Three primary barriers to students' understanding of spectroscopy emerged: the demands of the task, conceptual difficulties and language. Students interpreted "jumping" as electrons moving upwards **only**. Students struggled to distinguish similar words like refraction, reflection, and diffraction.

Through flagging language as a barrier, this study sought to contribute new insights into novice student difficulties in spectroscopy, over and above addressing known "black box" demands of the task and inherent conceptual difficulties.

