

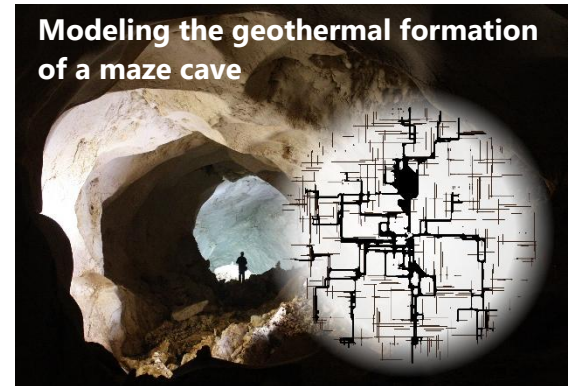
M.Sc. or Ph.D. Student – Exploring Cave Formation by Geothermal Flow Using Numerical Modeling

We seek a motivated and curious M.Sc. or Ph.D. student to join a fascinating research project focused on the formation of hypogene caves driven by geothermal flow.

Background:

Understanding the processes associated with geothermal flows rising from deep within the Earth's crust, and their accompanying water-rock interactions, is essential for the transition to a low-carbon economy ('the energy transition'). Such flows are sources of geothermal energy and critical minerals required for green technologies, and they are directly linked to carbon capture and storage, hydrogen fuel storage, and other processes within the renewable-energy system.

Hypogene caves, formed as a result of these flows and characterized by diverse and unique morphologies, serve as natural laboratories for studying these hidden processes. The integration of advanced numerical simulations, three-dimensional mapping methods, and precise geochemical measurements provides an effective tool for deciphering the formation mechanisms of these systems.



The research involves:

- Numerical simulations of fluid flow, solute transport, and dissolution reactions in porous and fractured media.
- Analysis and summarization of results in scientific reports and publications.
- Optional: Fieldwork for mapping and characterizing cave morphology.

Requirements:

- B.Sc. or M.Sc. degree in Geology, Earth Sciences, Geophysics, Environmental Sciences, Engineering, or Physics (or a related field).
- Strong quantitative background and experience in numerical modeling (MATLAB/Python/COMSOL) – **a major advantage**.
- Ability to work independently, scientific curiosity, and initiative – **strong assets**.
- Interest and suitability for cave fieldwork – **an advantage, but not mandatory**.
- Knowledge in hydrogeology – **an advantage**.

The research will be conducted under the supervision of Dr. Roi Roded (Tel-Hai, University on the Rise) and Prof. Amos Frumkin (The Hebrew University of Jerusalem), in collaboration with additional researchers from Israel and abroad.

Flexible start date (Spring 2026). A living stipend and financial support will be provided to suitable candidates.

To apply, please send a **CV** and a short **letter** describing your relevant background and scientific interests to: roi.roded@mail.huji.ac.il. *We welcome applications from candidates of all genders and backgrounds.*