

Curriculum vitae

Name: Zsombor Molnár

Birth date: 3. October, 1994

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Studies

Actual studies:

2018 – University of Pannonia, Faculty of Engineering, Doctoral School of Chemistry and Environmental Sciences (supervisor: *Prof. Mihály Pósfai*)

Former studies:

2016 – 2018: Eötvös Loránd University, Faculty of Science, Geology MSc., Mineralogy, Petrology and Geochemistry specification

2013 – 2016: Eötvös Loránd University, Faculty of Science, Earth sciences BSc., Geology specification

2009 – 2013: Lévy József Secondary School

Employment:

2020 – 2021: University of Pannonia, Research Institute of Biomolecular and Chemical Engineering

2015 – 2016: Hungarian Academy Of Sciences, Research Center For Astronomy And Earth Sciences, Institute For Geological and Geochemical Research

Languages:

English – intermediate (B2 complex)

Scientific background:

Memberships:

Hungarian Society For Microbiology (from 2015)

Hungarian Society For Microscopy (from 2018)

Member of European Association of Geochemistry (from 2019)

Grants:

- 2021 – 2024: „OTKA” Hungarian National Science Foundation – participant (NK134559; The causes and the aftermaths of the extraordinary algal bloom in Lake Balaton, 2019: the vulnerability of Lake Balaton with respect the climate change)
- 2019 – 2020: New National Excellence Program – research fellowship at the University of Pannonia Department Of Earth and Environmental Sciences (*Investigation structure and composition of fish otoliths from Lake Balaton*)
- 2018 – 2020: Excellence grant of the Multidisciplinary Centrum of University of Pannonia
- 2017 – 2018: New National Excellence Program – research fellowship at the ELTE Department Of Mineralogy in collaboration with the University of Pannonia, (*Heterogenous nucleation of carbonate minerals in lake Balaton - formation, morphology, composition*)
- 2015: MTA student fellowship – research fellowship in the HAS, RCAE, Institute For Geological and Geochemical Research (*Survey of the early Fe-Mn-oxide ore indications in the footwall of the Toarcian Úrkút Mn-carbonate ore deposit*)

Awards

- 2019: First place at the Scientific Conference of Students of Hungary in mineralogy section, held at Esterházy Károly University, Eger
- 2018: First place at the Pentathlon of Natural Sciences, Earth Sciences section, Budapest
- 2018: Third place in theoretical section at the Conference of Young Earthscientist, Hajdúszoboszló
- 2018: First place at the Scientific Conference of Students of Eötvös Loránd University held at Eötvös Loránd University, Budapest
- 2017: Fellowship of the Republic of Hungary

Publications:

- Enyedi N. T., Makk J., Kótai L., Berényi B., Klébert Sz., Sebestyén Z., **Molnár Zs.**, Andrea Borsodi, Leél-Őssy Sz., Demény A., Németh P. (2020): Cave bacteria induced amorphous calcium carbonate formation, *Scientific Reports*, (CIF: 4.12)
- Rajabzadeh M. A., Haddad, F., Polgári M., Fintor K., Walter H., **Molnár Zs.**, Gyollai I. (2017): Investigation on the role of microorganisms in manganese mineralization from Abadeh-Tashk area, Fars Province, southwestern Iran by using petrographic and geochemical data, *Ore Geology Reviews*, 80, 229-249. (CIF: 3.56)
- Molnár Zs.**, Polgári M., Hein J. R., Józsa S., Fekete J., Fintor K., Gyollai I., Bíró L., Szabó M., Forgó P., Rapi S., Vigh T. (2017): Fe-Mn-oxide indications in the feeder and mound zone of the Jurassic Mn-carbonate ore deposit, Úrkút, Hungary, *Ore Geology Reviews*, 86, 285-305, (CIF: 3.56)

International conferences:

- Molnár Zs.**, Pekker P., Pósfai M. (2021): The heterogeneous nucleation of calcium carbonate on smectite substrate – the effects of magnesium and phosphorus, *17th International Symposium on Experimental Mineralogy, Petrology and Geochemistry*, Online Conference, March. 1-3.
- Molnár Zs.**, Pekker P., Jakab M., Dódony I., Vitál Z., Pósfai M. (2020): Nanostructure of biogenic aragonite: a study of otoliths and bivalve shells from freshwater environment, *European Geoscience Union – General Assembly*, Vienna, May. 3-8.
- Pósfai M., **Molnár Zs.**, Pekker P., Dódony I., Frisia S., Mesiter P. (2019): Microstructure of the Magnesium-bearing carbonate precipitating from shallow freshwater lakes, Annual Meeting of the Geological Society of America, Phoenix, Sept. 22-25.
- Molnár Zs.**, Pekker P., Pósfai M. (2019): Calcium Carbonate Precipitation Induced by Clay Minerals, *Goldschmidt Conference*, Barcelona, Aug. 21-27.
- Meister P., Pósfai M., Pekker P., **Molnár Zs.**, Neuhuber S., Demény A., Gier S., Frisia S. (2019): Mineralogy and nano-structure of modern dolomite in Lake Neusiedl, Austria; General assembly of the *European Geoscience Union*, Vienna, Apr. 7-12.
- Pósfai M., Fodor M., Rostási Á., **Molnár Zs.**, Váczi T., Ható Z., Kristóf T. (2018): The role of clays in heterogeneous carbonate nucleation, *Goldschmidt Conference*, Boston, Aug. 18-23.
- Molnár Zs.**, Váczi T., Rostási Á., Pósfai M. (2018): Raman spectroscopic study of the Mg-bearing calcite from lake Balaton, Hungary – formation and composition, *XIII. Georaman Conference, Catania*, Jun. 9-13., poster section.
- Rostási Á., **Molnár Zs.**, Fodor M., Bereczk-Tompa É., Váczi T., Pósfai M. (2017): Templated nucleation and growth of calcite in a freshwater environment, *Goldschmidt Conference*, Paris, Aug. 18-23.
- Molnár Zs.**, Polgári M., Németh T., Fekete J., Gyollai I., Fintor K., Bíró L., Szabó M., Vigh T. (2016): Survey of the early Fe-Mn-oxide ore indications in the footwall of the Toarcian Úrkút Mn-carbonate ore deposit, Hungary, *XVII. Conference of Mining and Geology*, p. 156-160.

National conferences:

- Molnár Zs., Pekker P., Pósfai M. (2021): Heterogén felületek hatása a karbonátásványok képződésére magnézium- és foszfáttartalmú oldatokban, *16th Winter School in Mineral Sciences*, Online conference, jan. 22-23.
- Lázár A., **Molnár Zs.**, Aradi L. E., Kótai L., Klébert Sz., Trif L., Bódis E., Németh P. (2021): Ikait (kalcium karbonát hexahidrát) amorf karbonáttá alakulásának vizsgálata, *16th Winter School in Mineral Sciences*, Online conference, jan. 22-23.
- Németh P., Lange-Enyedi N. T., Makk J., Kótai L., Berényi B., Klébert Sz., Sebestyén Z., **Molnár Zs.**, Andrea Borsodi, Leél-Őssy Sz., Demény A. (2021): Bakteriális amorf kalcium karbonát, *16th Winter School in Mineral Sciences*, Online conference, jan. 22-23.
- Mihály Pósfai, **Molnár Zs.**, Péter Pekker, Kornél Rácz, Ágnes Rostási, István Dódony, Ivett Pálfi, Enikő Magyari, Vera Istvanovics (2020): Ásványképződés a Balatonban: karbonátok kiválása, átalakulása és esetleges szerepe az algavirágzásban, Magyar Tudomány Ünnepe, Online Conference, Nov. 11.

- Molnár Zs.**, Pekker P. Pósfai M. (2019): Heterogén kalcium karbonát nukleáció agyagásvány jelenlétében, *PhD. hallgatók XIX. anyagtudományi napja*, Veszprém
- Molnár Zs.**, Pekker P. Pósfai M.(2019): Balatoni üledékképződés vizsgálata laboratóriumban, *Pannon Tudományos Napok*, Nagykanizsa
- Pósfai M., **Molnár Zs.**, Rostási Á., Fodor M., Cserny T. (2019): Investigations of the sediments of Lake Balaton, *Hungarian Geological and Geophysical Assembly*, Balatonfüred, sept. 17-20.
- Molnár Zs.**, Pekker P., Pósfai M. (2019): Calcium carbonate precipitation induced by clay minerals, *Annual Meeting of the Hungarian Society for Microscopy*, Siófok, May 21-23.
- Molnár Zs.**, Váczi T., Pósfai M. (2018): Heterogenous nucleation of carbonate minerals in lake Balaton - formation, morphology, composition, *The Pentathlon of Natural Sciences*, Budapest, May. 14-17.
- Molnár Zs.**, Váczi T., Rostási Á., Pósfai M. (2018): Simulation of the heterogenous nucleation of Mg-bearing calcite from Lake Balaton under controlled conditions, *XLIX. Conference of Young Earthscientist*, Hajdúszoboszló, May.3-5
- Molnár Zs.**, Váczi T., Rostási Á., Fodor M., Ható Z., Kristóf T., Pósfai M. (2018): A Balatonban képződő Mg-tartalmú kalcit kiválásának vizsgálata laboratóriumi körülmények között, *13th Winter School in Mineral Sciences*, Veszprém, Jan. 20-21.
- Pósfai M., Rostási Á., Topa B., **Molnár Zs.**, Nyirő - Kósa I., Bereczk Tompa É., Fodor M., Cora I., Kovács A., Váczi T., Weiszburg T., Haas J. (2017): Karbonátásványok kiválása a Balatonban, *Közletani Vándorgyűlés, Szihalom*, Szept. 7.-9
- Molnár Zs.**, Polgári M., Németh T., Fekete J., Gyollai I., Fintor K., Bíró L., Szabó M., Vigh T. (2016): Fe-Mn-oxide ore indications in the footwall of the Toarcian Úrkút Mn-carbonate ore deposit, Hungary, *XLVII. Conference of Young Earthscientist*, Tiszafüred, Apr. 13-15.
- Molnár Zs.**, Polgári M., Bíró L., Gyollai I., Vigh T. (2016): Fossilized biomats as the possible source of high radionuclide content at the early-Jurassic Úrkút manganese ore deposit, *V. Terrestrial Radioisotopes In Environment*, Veszprém, May 7-11.

Manuscripts:

- Molnár Zs.** (2018): *Investigation of the calcite formation from Lake Balaton under laboratory conditions*, Msc. thesis
- Molnár Zs.** (2017): *Heterogenous nucleation of carbonate minerals in lake Balaton - formation, morphology, composition*, project summary
- Molnár Zs.** (2016): *Characterization of Iron biominerals*, Bsc. thesis
- Molnár Zs.** (2015): *Survey of the early Fe-Mn-oxide ore indications in the footwall of the Toarcian Úrkút Mn-carbonate ore deposit*, project summary

Supervising:

- Regina Kövér: *Investigation of an otolith* (2020); project summary
- Regina Kövér: *Mineralogical study on otolith* (2021); Bsc. thesis