

Publications:

Dutkowska, Katarzyna M. & Kristensen, Lars E. 2022a. *Water emission tracing active star formation from the Milky Way to high- z galaxies.* A&A. [in press]:

- Presentation of the galaxy-in-a-box model, a large-scale statistical galactic model of emission from galactic active star-forming regions.
- Parameter space study evaluating the impact of the most important global-star formation parameters on predicted emission from simulated galaxies.
- Results for para-H₂O 2₀₂ -1₁₁ line at 988 GHz show that the initial mass function and molecular cloud mass distribution have a negligible impact on the emission, both locally and globally, whereas the opposite holds for star-formation efficiency and free-fall time efficiency.

Dutkowska, Katarzyna M. & Kristensen, Lars E. 2022b. *Star formation estimates using modelling of molecular emission.* [in prep.]:

- Presentation of the extension of the galaxy-in-a-box model, that lets the user derive star formation rates from the model and use them as an input parameter, both on global and local scales.
- Study of star formation rates derived for galaxies with $L_{\text{FIR}} = 10^8 - 10^{11} L_{\odot}$ using the galaxy-in-a-box model.
- Comparison of derived relations and water luminosities with literature and observations.
- Evaluation of how protostellar outflows contribute to the total galactic emission.

Outreach publications:

Dutkowska, Katarzyna M. 2018. *When space-time bends* (orig. Gdy czasoprzestrzeń się ugina). Gazeta Wyborcza.

Dutkowska, Katarzyna M. 2018. *Where science meets practice - research with the use of an optical atomic clock* (orig. Gdzie nauka spotyka praktykę, czyli badania z udziałem optycznego zegara atomowego). Gazeta Wyborcza.

Posters:

Dutkowska, Katarzyna M. & Kristensen, Lars E. 2022. *Star formation through Cosmic history.* Niels Bohr Legacy Symposium in Astrochemistry. Copenhagen, Denmark.

Dutkowska, Katarzyna M. & Kristensen, Lars E. 2022. *Star formation through Cosmic history: from the viewpoint of a Milky Way inhabitant.* European Astronomical Society Annual Meeting. Valencia, Spain.

Rashdan, Omar, **Dutkowska, Katarzyna M.** & Kristensen, Lars E. 2022. *Modeling molecular emission to uncover the mass distribution of forming stars*. Annual Danish Astronomy Meeting. Fredericia, Denmark.

Dutkowska, Katarzyna M. & Kristensen, Lars E. 2021. *Galaxy-in-a-box: unveiling star formation across Cosmic time*. European Astronomical Society Annual Meeting. Online conference.

Dutkowska, Katarzyna M. & Kristensen, Lars E. 2021. *Galaxy-in-a-box: Linking Galactic and Extragalactic Star Formation*. Annual Danish Astronomy Meeting. Online conference.

Dutkowska, Katarzyna M., Kristensen, Lars E. & Bergin, Edwin A. 2020. *Linking Galactic and Extragalactic Star Formation Through Water Emission*. Physique et Chimie du Milieu Interstellaire PCMI. Le Havre, France.

Dutkowska, Katarzyna M. et al. 2018. *Strongly variable water maser associated with a Sun-like protostar*. XXXth General Assembly of the International Astronomical Union IAU. Vienna, Austria.

Dutkowska, Katarzyna M. et al. 2018. *Peculiar H₂O maser in a solar-type protostar L1448 IRS 2*. Prebiotic Molecules in Space and Origins of Life on Earth. Bad Honnef, Germany.

Dutkowska, Katarzyna M. & Żółtowski, Michał. 2017. *Astrochemistry: then and now*. Astronomy Students' Associations Conference KSAKN. Warsaw, Poland.