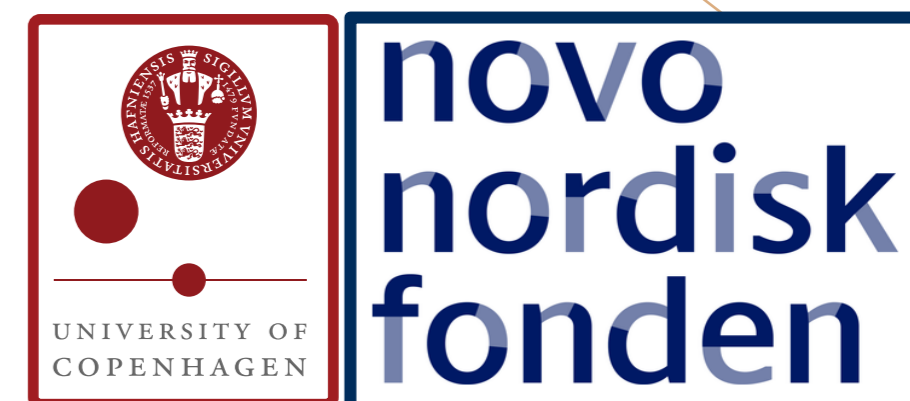


CLOUD FORMATION AND CLOUD PROPERTIES IN EXOPLANET ATMOSPHERES



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D'Alessandro A.^{1,2}, Jørgensen U. G.^{1,2}, Helling C.^{3,4}

¹ Centre for ExoLife Sciences (CELS), Copenhagen University, Denmark

² Niels Bohr Institute (NBI), Copenhagen University, Denmark

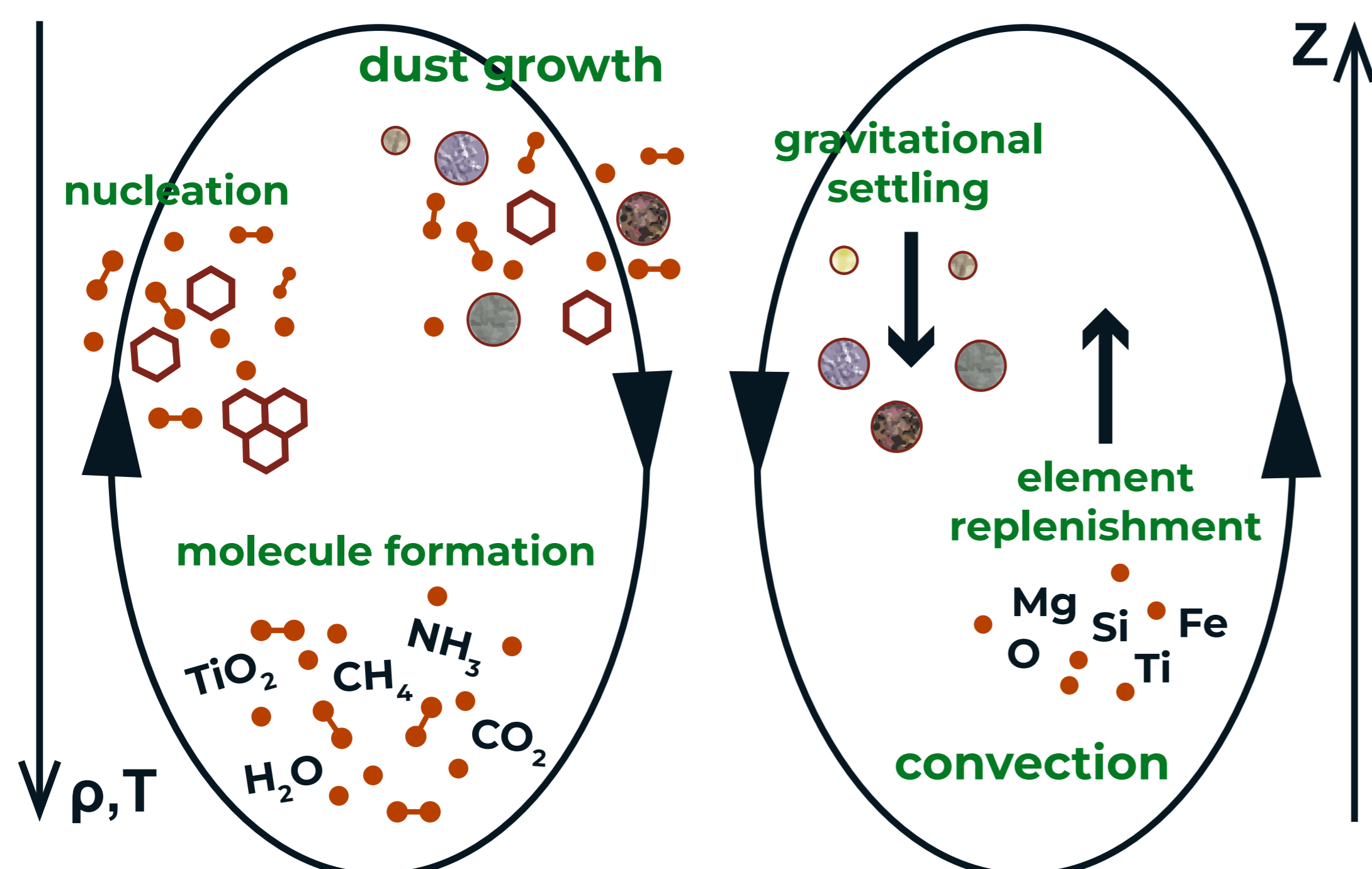
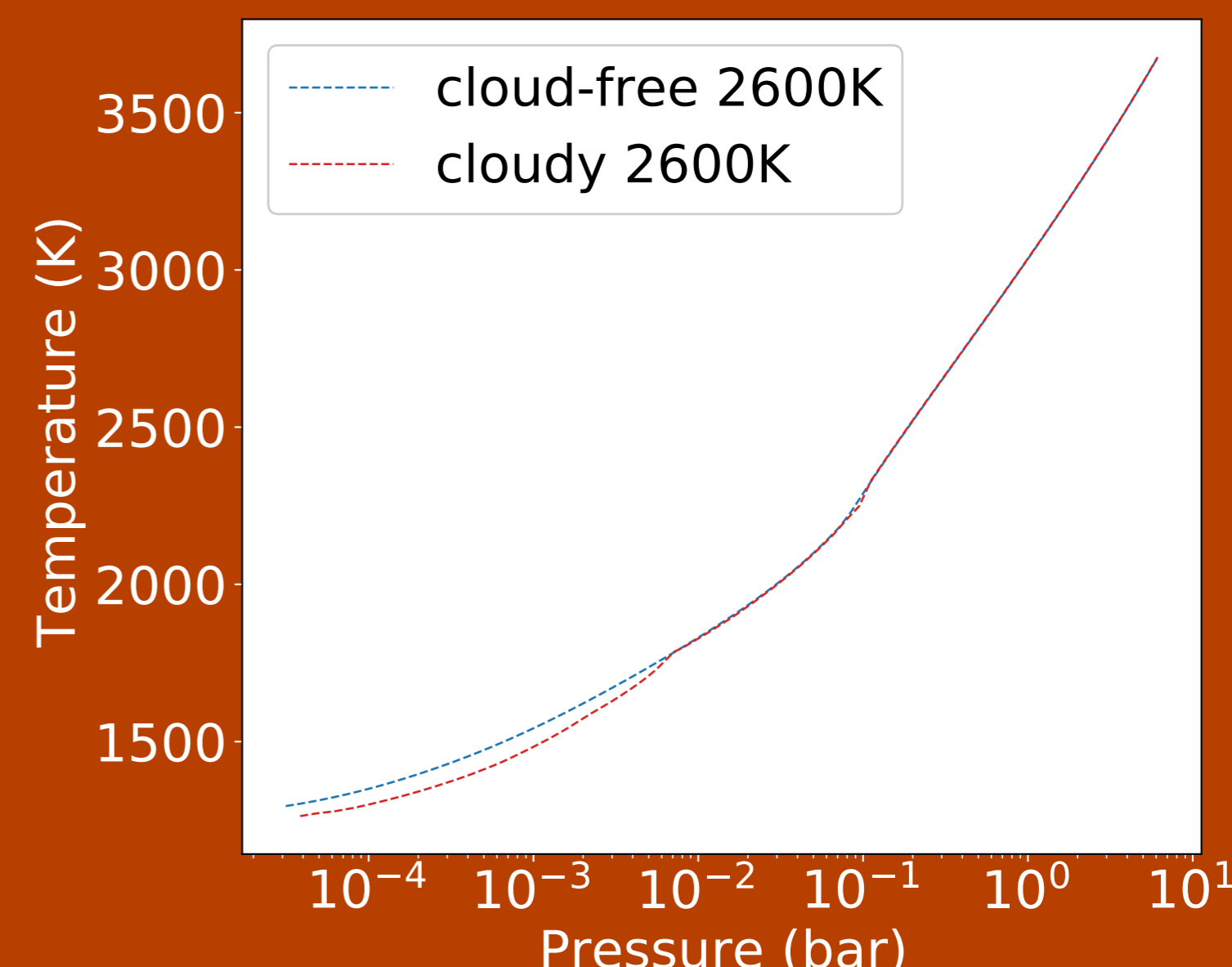
³ Space Research Institute, Austrian Academy of Sciences, Graz, Austria

⁴ TU Graz, Fakultät für Mathematik, Physik und Geodäsie, Graz, Austria

Context: In most exoplanets a major fraction of the energy balance is governed by clouds. Cloud physics and chemistry are extremely complex.

At CELS our exoplanets atmospheres models are obtained using:

- **MARCS** (1): radiative and convective transfer in LTE
- **GGChem** (3): equilibrium gas chemistry
- **Static Weather** (2,4): cloud physics and chemistry



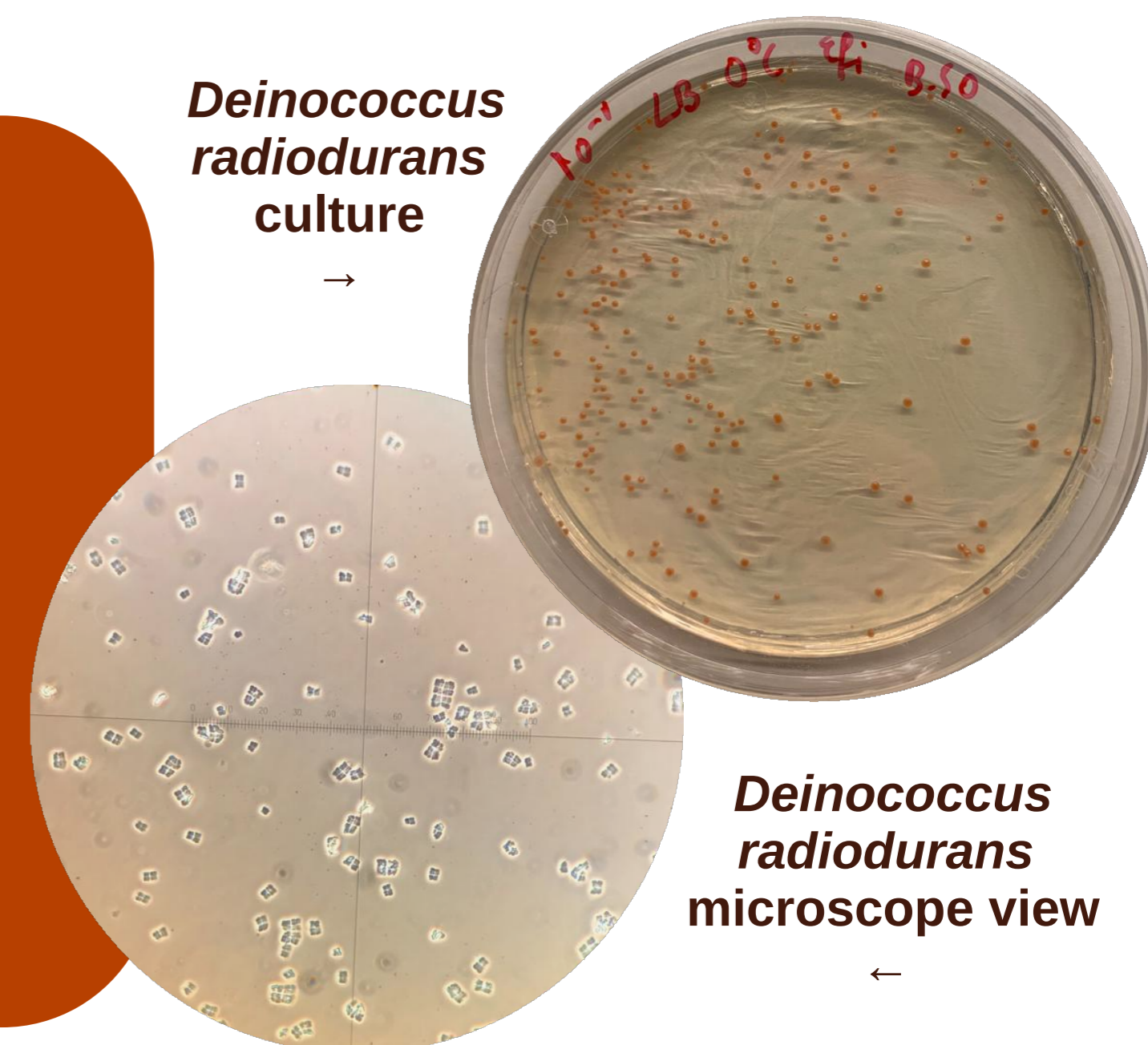
Sketch of the convective dust formation (5)

State of the art: self-consistent but static circulation phenomenon, governed by the temperature and convection structure of the model

Project goals:

- More solid description of the cloud physics
- Difference between clouds formed from mineral seeds (e.g. TiO_2 , SiO) and microbiological seeds (e.g. extremophile bacteria)
- Observability of spectral features emerging in the two cases: can we use those as biosignatures?

Deinococcus radiodurans culture



Deinococcus radiodurans microscope view

References:

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Azzurra D'Alessandro
azzurra.dalessandro@nbi.ku.dk

