

# Astrochemistry oral exam

Example questions 2022

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# Basic processes

- Q: Describe the process of associative attachment; give example where it is important in astrophysics
- A: see Lecture 1, slides 81-82; draw potential curves; example:  $\text{H}^- + \text{H} \rightarrow \text{H}_2 + e$  in the early Universe

# PDRs

- Q: What is a PDR? Sketch or describe the chemical structure as function of depth into the cloud. Explain the changes
- A: See Lecture 4, slides 46, 50, 58, 61. Importance of  $\text{H} \rightarrow \text{H}_2$  and  $\text{C}^+ \rightarrow \text{C} \rightarrow \text{CO}$  transitions. Changes are sharp because of self-shielding, mutual shielding and shielding by dust (explain, slide 45).