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Non-linear astrochemical kinetics: theory and applications

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Propositions

accompanying the thesis

Non-linear Astrochemical Kinetics

- Theory and Applications -

1. Chemical bistability can occur both in oxygen, carbon and nitrogen based chemical networks. (Chapters 2 and 3)
2. It is likely that for specific ranges of parameters chemical bistability will take place in astronomical environments with clearly different conditions. (Chapters 2 and 3)
3. Whereas astrochemical oscillations show up clearly in models, it will be hard to prove their existence observationally. (Chapter 4)
4. Astrochemical models are useful, also when their outcomes deviate from numbers found observationally as this puts further constraints on the used conditions.
5. Ice chemistry is cool !
6. Scientific outreach is important, but one should be careful that it does not reach out over science.
7. Today's science policy tends to move 'research for science' to 'research to publish'.
8. Going through an external PhD program adds challenges that are not *a priori* expected.
9. Therefore do not worry about tomorrow, for tomorrow will worry about itself. Each day has enough trouble of its own - Matthew 6:34
10. Compared to the monthly changing Corona travel measures between the US and Europe, the value of the Bitcoin looked like a constant of nature.

Gwénaëlle C. Dufour
Leiden, 21st June 2022