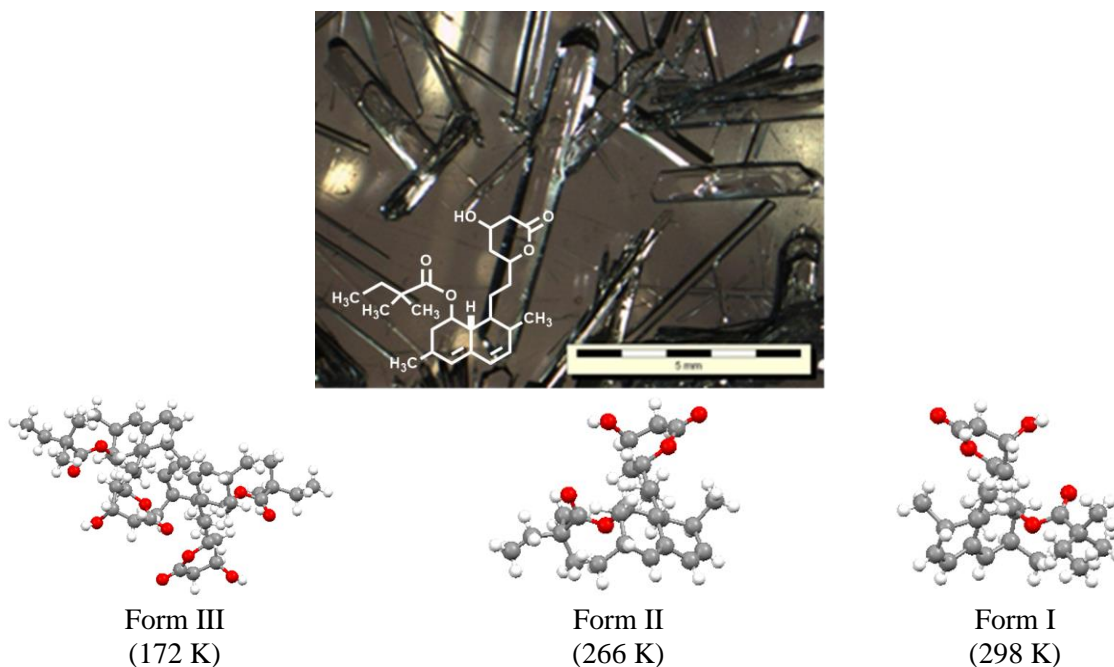


# Polymorphism in Molecular Organic Solids

M. E. Minas da Piedade<sup>1</sup>

*Centro de Química e Bioquímica e Centro de Química Estrutural, Faculdade de Ciências, Universidade de Lisboa, Campo Grande, 1749-016 Lisboa, Portugal*  
*memp@fc.ul.pt*

Since the middle of last century, it has been widely recognized that many organic compounds can be obtained in more than one crystal form, a phenomenon known as polymorphism. It also became apparent that the adopted crystal structure often exerts a significant effect in the solid-state properties of the compound, so that each polymorph should be regarded as a different material. Controlling polymorphism is, therefore, essential to ensure the manufacture of products with highly reproducible properties. It also provides a means to tune the properties of a product in view of an application, without changing the molecule involved. Problems and opportunities related with polymorphism in molecular organic solids will be illustrated through a few examples covering active pharmaceutical ingredients, such as simvastatin (Figure 1) [1], dyes and non-linear optics (NLO) materials.



**Figure 1.** Crystals of the anti-hyperlipidemic drug simvastatin and molecular structures of the three known polymorphs.

## Acknowledgements.

Support for this work was provided by FCT project PTDC/QUI-OUT/28401/2017 (LISBOA-01-0145-FEDER-028401).

## References:

[1] For leading references see: (a) R. G. Simões, C. E. S. Bernardes, H. P. Diogo, F. Agapito, M. E. Minas da Piedade *Mol. Pharmaceuticals* **2013**, *10*, 2713; (b) R. G. Simões, C. E. S. Bernardes, A. Joseph, M. F. M. Piedade, W. Kraus, F. Emmerling, H. P. Diogo, M. E. Minas da Piedade *Mol. Pharmaceuticals* **2018**, *15*, 5349.