

PHYSICAL METHODS APPLIED IN THE LIFE SCIENCES

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During the Physics lectures and laboratories numerous mathematical and experimental methods are used to understand and to describe the physical processes. In case of pure Physics some of these methods are quite simple and well known.

If the questions of the Life Sciences – with living material - are considered, much more complicated problems can occur full with cross-effects between different subsystems. Although these problems are more complex, the physical methods known from simpler problems as analogies can be used to describe them.

During the presentation some basic numerical methods are introduced and applied for physical and life science problems. During the analysis the similarities and the difficulties are investigated, too.

Beside the numerical modelling methods the adaptability of some known measurement techniques to biological systems are investigated, too. Among the applications material properties of the drying processes of biomass material is also presented.

In this case the drying process is quite well described by the theory of other researchers, but in the governing equations the material properties are generally unknown as they are different for the different states of the given product.

But from measurement results under known conditions the basic properties can be determined from the comparison of the modelling and measurement. Most of the cases the different properties have influence on each other which makes the problem more complicated.

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