

Abstracts PdN-ChiS 1/57

Structure forming processes – a historical overview

M. Ducci, M. Oetken

The article gives a historic overview on structure forming processes up to the discovery of determinate chaotic processes in real chemical systems.

PdN-ChiS 1/57, p.6

Far away from the chemical equilibrium – oscillating systems

M. W. Tausch

Closely linked to core contents of the chemistry curriculum, the fundamentals for the description and explanation of chemical oscillations are explained. A basic experiment and different variations of it are proposed for the didactic integration in connection with the chemical equilibrium.

PdN-ChiS 1/57, p.14

Structure forming processes – a teaching unit

M. Oetken, M. Ducci

A six lesson teaching unit for the *Sekundarstufe II* is proposed. Due to didactic reduction it contains an adequate and consistent pattern of explanation of structure forming reactions on a qualitative level and a concept on the driving force of chemical reactions.

PdN-ChiS 1/57, p.19

Order versus chaos – an interdisciplinary approach: chemistry and arts

J. Lipscher

This article describes structure forming processes in the context of an interdisciplinary project in chemistry and arts. The chemical background of the reactions, lab instructions and causes of the formation of patterns are presented and added by methodological hints.

PdN-ChiS 1/57, p.26

Light emitting oscillating chemical reactions

H. Brandl

Amongst the highlights of chemical demonstrations are certainly oscillating and luminescent reactions. The author presents oscillating photoluminescent and chemoluminescent reactions based on variations of the well-known Belousov-Zhabotinskii reaction and the Orban-oscillator system.

PdN-ChiS 1/57, p.29

Teaching beginners

Energy conversion in biochemical reactions

S. Brezmann

In inanimate nature as well as in living nature change in matter is always connected to energy conversion. This can be shown to pupils in science classes of *Sekundarstufe I* using exercises on the aspects of matter and energy in photosynthesis and respiration.

PdN-ChiS 1/57, p.32

A New Culture of Exercises

When the airbag explodes; guaranteed odourless

D. König

This context-related exercise deals with the concept of amount of substance and the gas laws.

PdN-ChiS 1/57, p.32

Forum

Data on teacher training at university – part 1: training of grammar school teachers (example: training of chemistry teachers)

R. Demuth, U. Rohwedder

The article reports on a topical survey on the structural characteristics of the training of future chemistry teachers. The focus was on aspects which had been labelled as “central requirements” by the expert commission of the conference of the ministers of education.

PdN-ChiS 1/57, p.39

The equilibrium game – how to playfully learn about the chemical equilibrium

W. Keil

A way of learning about the dynamic character of the chemical equilibrium by playing with balls is described. A computer simulation on this can be seen on the school’s homepage.

PdN-ChiS 1/57, p.42

Experiencing chemistry via field trips –visiting a bakery with the chemistry seminar

S. Wagner, C. Vöst, M. Anton

The great relevance of chemical processes in everyday life can rarely be directly experienced. The production of lye dough pastry is suitable for experience-based learning, for using external places and for the professional orientation of pupils.

PdN-ChiS 1/57, p.46