



## Smart Molecules- Photochemistry with Ones and Zeros

**Prof. Dr. Uwe Pischel**

CIQSO,  
University of Huelva,  
Spain

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Uwe Pischel

*CIQSO - Centre for Research in Sustainable Chemistry and Department of Chemical Engineering, Physical Chemistry, and Organic Chemistry; University of Huelva; Spain*

A considerable part of the research of our group has been focussed on the development of fluorescent or photoactive molecules that can be used to process binary information in form of chemical signals or light signals. As output information most often the fluorescence of the molecule or the supramolecular assembly is read. Such efforts have direct implications in the design of smart materials with potential applications for pro-drug activation, diagnostics or information storage. Furthermore, they constitute an approach to define new paradigms of molecular computing. What started with relatively simple logic operations in form of AND, OR, YES, or NOT gates has reached nowadays unprecedented levels of complexity. Molecules that can sum or subtract binary numbers or that behave as keypad locks are just some examples for these developments.

In my presentation I will give a short introduction into this exciting field, focus on some of our most representative contributions and try to provide a contextualized perspective. The classes of compounds and molecular devices that will be covered include fluorescent switches with chemical inputs (often pH) and photochromic systems that are addressed and read exclusively by optical signals.