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## Extremophiles - Life under extreme conditions

Life on our planet comprises a large variety of organisms ranging from unicellular prokaryotic microorganisms to complex multicellular eukaryotes, such as plants, animals and men. Today, most organisms are adapted to moderate physicochemical environmental conditions, such as temperatures between 10-40°C, pH values of 6-8 and low salinity (<0.2 M NaCl). Recently, many microorganisms have been isolated from "extreme" environments, which were once thought to be devoid of life. These extremophilic microbes grow e.g. at temperatures up to 120°C, at acidic pH (pH 0-2) or at high salinity (up to 5 M NaCl). This talk will mainly focus on hyperther-mophiles, their habitats and adaptation of cellular components to heat. The metabolism and phylogeny will be discussed. It is assumed that hyperthermophiles represent the most ancestral living organisms, and that life likely originated under hyper-thermophilic conditions in the absence of light and oxygen, with geochemically formed compounds, such as H2, CO2 and S, as nutrients. These conditions are assumed to be similar to those of the early earth.

## CV

Prof. Dr. Peter Schönheit

1972-1977 Study of biology and chemistry at Ruhr-University Bochum
PhD (1980) and Habilitation (1987) in Microbiology at Philipps-University Marburg
1989-1996 Professor for Microbiology at Free University Berlin
1996-2019 Professor for Microbiology and Director of the Institute of General Microbiology at Christian-Albrechts University Kiel
2014 Guest- Professor at Kyoto University, Japan, funded by JSPS
Since 2019 Professor Emeritus
His main research topic is the (sugar) metabolism of extremophilic Archaea

- Biochemie, Enzymologie, Regulation und Evolution neuartiger Zuckerabbauwege von extremophilen Archaea.
- Enzymologie und Regulation des archaeellen Acetatstoffwechsels.
- Regulation von Enzymaktivitäten, z.B. Acyl-CoA Synthetasen durch post-translationale Acetylierung/ Deacetylierung.