

X-RAY SCIENCE AT THE EUROPEAN SYNCHROTRON RADIATION FACILITY: RECENT RESULTS AND FUTURE CHALLENGES

F. Sette^{*}
ESRF

Third generation synchrotron radiation sources are presently reaching their full maturity. Their impact is very widespread, and many areas of science and technology are strongly benefiting from them. Fundamental research problems are regularly addressed, and typical examples are provided by: I) High pressure research, where equation of state, physical properties and new materials are investigated at very exotic conditions, ii) Highly correlated systems, which are studied with novel polarization dependent scattering and spectroscopy techniques, iii) time resolved studies, addressing microscopic processes in the sub-nanosecond range, iv) The extraordinary revolution in biology, which is fostered by the exploding field of structural studies of proteins. The present contribution will illustrate few examples in this respect. Moreover sometime will be devoted to new challenging possibilities, as the fields that may become available in the future thanks to expected instrumental achievements from new storage ring, extreme x-ray focusing, and exotic samples and sample environments.

^{*} Corresponding author: e-mail: sette@esrf.fr