The National Synchrotron Light Laboratory, Brazil. Past, present and future

Craievich, A. F.[1]

[1]*Institute of Physics, University of São Paulo, São Paulo, Brazil*

The Brazilian Synchrotron Radiation Project started its development in 1981 at the Brazilian Center Physical Research (CBPF) in Rio de Janeiro. The subject was thoroughly discussed, from 1981 to 1986, involving most of the Brazilian scientific societies. During that period, the project was also presented at a meeting of the Argentinian Physical Society, in La Plata, and at the SLAFES held in Mar del Plata. When the project reached its maturity, in 1986, the Brazilian CNPq organized an open competition to decide on the location site of the future National Laboratory. Four proposals were submitted by institutions at Rio de Janeiro, Niteroi, Campinas and San Carlos. Campinas was selected and so, in January 1987, the National Synchrotron Light Laboratory (LNLS) started its activities.

Ten years were needed for the LNLS (1987-1996) to complete its basic infrastructure, to develop the technical design and to build a second-generation light source (UVX), consisting of an electron storage ring of 1.37 GeV and a linac injector of 120 MeV. In parallel, seven beam lines were designed and built, which started to be used in July 1997. The number of users of LNLS grew from 200 in 1997 to 2400 in 2009, with approximately 45

LNLS launched recently a project to develop a new third-generation light source (Sirius), comprising an electron storage ring of 3.0 GeV with permanent magnet dipoles, a booster and a linac. The optical quality of this new light source will be considerably higher than that of the current UVX storage ring, and comparable to, and in many ways better than, that of light sources recently constructed in first world countries.

Argentinian users met in November 2010 at INIFTA, La Plata, with representative members of LNLS, Argentinian Physical Society (AFA), Argentinian Crystallography Association (AAC) and Ministry of Science of Argentina (MinCyT) to discuss preliminary issues concerning the possibility of constructing one or two argentinian beam lines to be installed at LNLS, in the new facility, Sirius. This initiative is particularly interesting, since it would allow for greater participation of Argentina's user community and would include some share of responsibility for the operation of LNLS. If this project were approved, the argentinian beam lines would be defined and built in parallel with the construction of the future Sirius light source.

Finally I will briefly describe several experimental investigations developed at the LNLS, some of them in collaboration with research groups in Argentina.