

CHAPTER 9

Conclusions

For humankind to continue its progress in harmony with Nature, it is essential to continue efforts towards developing its deeper, scientific understanding. Although the main driving force behind research in basic science may be intellectual curiosity, the results of this endeavor have had, and will have profound influences over our thinking and the view of the Universe, material and life.

Elementary particle physics is a quest for the fundamental building blocks of the Universe and the forces acting between them. The GLC project aims to build a forefront research facility based on an electron-positron linear collider. It will address many of the long-standing questions in elementary particle physics and cosmology by conducting experiments of the energy frontier of the 21st century.

The outcome of our past collaborative efforts with colleagues in Asia, North America, and Europe has yielded a convincing set of technical knowledge for a credible and optimized design of an electron-positron linear collider. The design scheme of GLC, thus developed, is based on high-power microwave technology, with copper accelerator structures, operating at room temperature. Studies concerning the conventional facilities and selection of prospective site candidates are well under way.

Consistent with the statement issued by ACFA, the community around GLC considers it best to build this accelerator in Japan through a global-scale international collaboration. A possible path for forming an adequate laboratory organization for this purpose has been proposed. We are determined to work hard along those lines, thus contributing to the development of science not just in Asia, but throughout the whole world through existing and new collaborations with all who wish to participate.

The pursuit of fundamental knowledge of Nature is a creative cultural activity, and the scientific

knowledge obtained therein is an asset common to all humankind. We submit this GLC Project document to readers in a wide range of sectors in our society. We hope that this document contains a sufficient amount of inputs to stimulate active world-wide discussions for this important next step for studies in a branch of basic science.