Preface

A first workshop on beam orbit stabilization (WBS) was held in the end of 2001 as a Japanese domestic meeting for reviewing our activities. At that time, a project for beam orbit stabilization was in progress at SPring-8. Although we had been making various efforts to achieve good orbit stability, the achieved stability was far from satisfactory. To overcome the situation, the project team was formed gathering experts from almost all fields of accelerator elements. Through the two years activity, a main perturbation source in SPring-8 we found was vacuum chamber vibration at the inside of quadrupole magnets. That was surprising for us indeed. At the same time, I thought that "similar experiences might be stored in other institutes" and "we should share such valuable experiences and knowledge for the SR society". This is the strongest motivation to organize the second WBS as an international workshop (IWBS).

Beam orbit stability is one of the most important issues for a light source, especially for a third-generation light source with small transverse beam sizes. In general, experimental users in each institute are not satisfied with the present beam orbit stability and there still remains room for stability improvement, we believe. The ultimate stability of sub-micron or less requires both a sophisticated orbit correction system and hardware systems suppressing perturbation sources. It is quite significant to understand the present performance-limit and critical paths for pushing the stability up to a sub-micron level. Furthermore, for post third-generation machines presently predicted, to realize low emittance is still a target. The knowledge and technology on the orbit stability developed by our efforts might be effective for that in next-generation machines to some extent. Nevertheless, there is no adequate place where we can have thorough, systematic and frank discuss and exchange on the experiences, the achieved results, the plans for improvement, and the valuable knowledge. We would like to make the second IWBS just like the meeting mentioned above. We thought if such international workshop were organized, it would be fruitful for all researchers tackling with the same problems both in real machine-operation and in new machine-design,

We provided the following five sessions in the workshop to clarify the present status of the orbit stabilization and to discuss the potentiality of both the source suppression and the orbit correction;

"Facility Reports on Orbit Stabilization",
"Capability of Source Suppression",
"Slow Orbit Measurement and Correction",

"Fast Orbit Measurement and Correction", and
"Toward sub-micron orbit stability (Strategic Approach)".
To understand the requirements from users and their efforts on stabilizing photon beam, we invited two speakers, Dr. Ishikawa presenting "User's Requirements for Orbit Stabilization" and Dr. Nishino presenting "X-ray Beam Stabilization by MOSTAB". After fixing the outline of the workshop, we started to explain our idea and discuss the specific talks in each session by e-mail. Through lots of arguments by e-mail and face-to-face discussions in the eighth EPAC held in Paris, many researchers agreed with our idea and promised the supports to the IWBS realization. Owing to warm and strong supports from various institutes, in spite of a short preparation period we could successfully organize the 2nd IWBS in which about forty overseas researchers participated. I hope that all participants really enjoyed the IWBS and this great trial will continue in the future. I close the preface by announcing that Paul Scherrer Institute (PSI) will organize the next (3rd) IWBS in three years.

I am looking forward to seeing you again and many new comers in Switzerland. At last I would like to express my special thanks to local organizing staffs for their effort and especially to Ms. Y. Kobayashi for her checking my English material including this preface.

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Organizer of second international workshop
on beam orbit stabilization