

Abstract Submitted  
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**Electron scattering for exotic nuclei** TOSHIMI SUDA, RIKEN Nishina Center — One of burning issues of nuclear physics today is to understand the structures of short-lived nuclei, some of which, especially at near the drip lines, were discovered to have peculiar structures, such as skin or halo. Electron scattering which is the best probe for the study of atomic nuclei, has never been applied due to difficulties for target preparation; their short lifetime and low production rate. In order to overcome the difficulties, we have proposed a novel internal-target scheme, SCRIT (Self-Confining RI Target). This technique is based on the “ion-trapping” phenomenon known at electron storage rings, which is seriously harmful for the ring performances. SCRIT uses the phenomena positively to form the targets of exotic nuclei on the electron beam. The feasibility study of this scheme has been done using a prototype. The results of the study using stable  $^{133}\text{Cs}$  ions, which completely mimicked the usage of short-lived nuclei, show that the SCRIT scheme works, and a luminosity of higher than  $10^{26}$  / $\text{cm}^2/\text{s}$  is achievable using only  $10^6$  ions, which is high enough for elastic scattering. A door to completely untouched fields in nuclear physics is now ready to open. An electron scattering facility in RIKEN RI Beam Factory is under construction.

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