

PROPOSAL FOR EXPERIMENT AT RCNP

13 January 2003

TITLE: Continuing investigation of the charged-particle decay of the *Isoscalar* Giant Dipole Resonance

SPOKESPERSONS:

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EXPERIMENTAL GROUPS:

University of Notre Dame, USA - RCNP, Japan - Kyoto University, Japan - Konan University, Japan - KVI, The Netherlands - IN2P3, Orsay, France - NSCL, Michigan State Univ., USA.

RUNNING TIME:

Total running time not including beam preparation 8 days

BEAM LINE: WS BEAM REQUIREMENTS:

Type of particle ^4He

Beam energy 400 MeV

Beam intensity 1 nA

Other requirements

beam must be halo-free highest stability over several days is required

BUDGET:

Summary of budget expenses

Experimental expenses 3,000,000 yen

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SUMMARY OF THE PROPOSAL

The proposed measurements aim at continuing our investigation of the charged-particle decay of the Isoscalar Giant Dipole Resonance (ISGDR). We have recently measured the proton decay of ISGDR in ^{208}Pb (experiment E188). On the base of this successful result, we propose to extend these measurements to the lighter nuclei: ^{116}Sn , ^{90}Zr , and ^{58}Ni . Recent calculations have predicted a large branching ratio for proton decay from ISGDR in these nuclei (up to 5 times that for ^{208}Pb in case of ^{90}Zr , for example). Decay measurements can provide extremely valuable information on the microscopic structure of the resonance, as also stringent comparisons with available theoretical calculations.