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High-spin states of 93Nb

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High spin isomers are known in N=83 isotones systematically.
These isomers are considered to be shape isomers caused
by sudden shape changes from near spherical to oblate shapes.
In order to search for high-spin isomers in other mass region,
the 90Zr region was selected.
Comparing the spherical single particle orbits near Fermi surfaces of nuclei
in these two regions, there are similarities both for protons and neutrons.
Then the existence of the isomers with the same origin
as those in N=83 isotones may be expected in nuclei of 90Zr region.

The high-spin states of 93Nb were studied via the 82Se(16O, p4n)93Nb reaction.
The level scheme of 93Nb was extended up to 11.0 MeV in excitation energy.
Twenty-three g-rays and 19 levels were newly found using gg coincidence data.
States lying near the yrast line were interpreted using a weak coupling picture
of a g9/2 proton to the excited states of a 92Zr core.
An M1 rotational band was found starting from the 37/2(-) state.
This band shows characteristics of a collective oblate band.

Primary author: Dr WAKABAYASHI, Yasuo (Center for Nuclear Study, University of Tokyo)

Co-authors: Dr YAMAZAKI, Akiyoshi (Tohoku University); Prof. ODAHARA, Atsuko (Osaka University); Prof. LEE, Chun (Chung-Ang University); Mr MOON, Jun (Chung-Ang University); Dr FUJITA, Masahiro (Tohoku University); Mr INOUE, Masaki (Kyushu University); Mr KIBE, Michiya (Kyushu University); Ms HOKOIWA, Naho (Kyushu University); Mr TANAKA, Shuichi (Kyushu University); Mr SASAKI, Takafumi (Kyushu University); Dr SONODA, Tetsu (Tohoku University); Dr FUKUCHI, Tomonori (RIKEN); Prof. SHINOZUKA, Tsutomu (Tohoku University); Prof. GONO, Yasuyuki (RIKEN); Dr KWON, Young (Chung-Ang University)

Presenter: Dr WAKABAYASHI, Yasuo (Center for Nuclear Study, University of Tokyo)

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