

# 746<sup>th</sup> ASRC Seminar

Date: Feb. 21 (Thu), 13:30~

Location: Room 302, ASRC Bldg.

Speaker: Dr. Kazuyuki Ogata

(Research Center for Nuclear Physics, Osaka University)

**Title** : Cross sections and spin polarization observables  
in exclusive and inclusive knockout reactions

## Abstract:

**In this talk, I will introduce some nuclear reaction studies on nucleon-induced nucleon knockout reactions, with putting emphasis on the difference between the exclusive and inclusive processes. In the former, the initial state of the nucleon in the target and the final state of the knocked out nucleon are specified (to some extent) and characteristic responses from the nucleus to the incident nucleon are expected to be observed. In the latter, on the other hand, numerous initial and final states contribute and the behavior of the outgoing nucleon, for example, its angular distribution, is very different from that in the former.**

**After reviewing these basic phenomena, I will focus on spin polarization physics. If the knockout processes are regarded as nucleon-nucleon scattering in the environment of many-nucleons, we may expect to see "distorted" nucleon-nucleon spin observables in the knockout reactions. I will introduce some examples of such observation and their physical understanding.**

[1] T. Wakasa, K. Ogata, and T. Noro, *Prog. Part. Nucl. Phys.* **96**, 32 (2017).

[2] K. Ogata, G. C. Hillhouse, and B. I. S. van der Ventel, *Phys. Rev. C* **76**, 021602(R) (2007).

[3] Th. A. J. Maris, *Nucl. Phys.* **9** (1958-1959) 577.

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