

1	Title of research		Studies of resonant reaction in nuclear astrophysics and alpha cluster structure
2	List of Participants (Name and affiliation)		M. Ito, Department of Pure and Applied Physics, Kansai University
			H. Yamaguchi, Center for Nuclear Study (CNS), the university of Tokyo
			I. H. Kevin and D. Kim, Institute for Basic Science (IBS), Center for exotic nuclear studies
3	Period of research		Apr. 2020 – Mar. 2021
4	Main location of collaboration implementation		Remote
5	Publication list (Please include DOI if available)	Articles	nothing
		Talks	See description of the results and outputs
		Theses	See description of the results and outputs
6	Description of the results and outputs		<p>The main subject was the analysis of the resonant reaction, which plays important roles in the astrophysical phenomena. The reaction mainly discussed here is the resonant reaction induced by the slow RI beam with the <math>\alpha</math> target, which has been recently achieved by the development of the experimental technique. The example of such the resonant reaction by the RI beam is <math>^{15}\text{O} + \alpha</math>, <math>^{22}\text{Ne} + \alpha</math> and so on.</p> <p>In the period of research, unfortunately, it was impossible to have an on-site and pragmatic collaboration because of COVID-19 calamity. Instead, we had the collaboration meeting by zoom on 11, December 2020. In this meeting, we exchanged information about the experimental and theoretical studies in Korean and Japanese groups. Moreover, we had a plan of mini workshop relevant to the resonant scattering by RI beam in collaboration with CNS the university of Tokyo, IBS research center for exotic nuclear studies and Kansai university.</p> <p>The mini workshop was held on 22 February, 2021. The title of mini workshop is "Physics in resonant reaction induced by low-energy RI beam". There are 11 talkers and about 40 participants in this mini workshop. We had the exciting and fruitful discussion about the resonant reaction by the RI beam, and the workshop becomes a basic step to advance the international collaborations in this research field. The workshop program and the presentation slides are opened in the following web-site:</p> <p><a href="https://www.cns.s.u-tokyo.ac.jp/cnib/PRR2021/miniWS.htm">https://www.cns.s.u-tokyo.ac.jp/cnib/PRR2021/miniWS.htm</a></p> <p>with the user name and the password of</p> <p>user: slides pass: resonant2021</p> <p>Finally, I have a comment on the member in the COREnet program. Since we could not have pragmatic collaborations in this research period, Prof. P. Descouvemont at Free university of Brussels, who was an original member in the program, was not involved in the research activity.</p>