Report of the RCNP Collaboration Research Network (RCNP-COREnet)

COREnet047 PI: NAGAHIRO Hideko

1	Title of research		Nature of Omega(2012) baryon
2	List of Participants (Name and affiliation)		Hideko Nagahiro, Nara Women's University / RCNP, Osaka University, nagahiro@cc.nara-wu.ac.jp
			Qi-Fang Lyu, Hunan Normal University, China
			Ya-Li Shu, Hunan Normal University, China
			Atsushi Hosaka, RCNP, Osaka University
3	Period of research		from 2023 FY to 2024 FY
4	Main location of collaboration implementation		RCNP, Hunan Normal University, and zoom
5	Publication list (Please include DOI if available)	Articles	(now preparing)
		Talks	(Invited talk) Internal structure of Ω(2012) baryon in a coupled-channel approach, presented by H. Nagahiro at "The 3rd Korea-Japan Workshop on Hadrons and Nuclei", 2-3 Mar. 2025, Korea University
			(Invited seminar) presented by H. Nagahiro at Quark-Hadron theory group seminar of Nagoya University, 23 Apr. 2024.
			A talk at the conference 第19回核構造全国大会 in China, presented by Qifang Lyu.
6	Description of the results and outputs		We have studied the Omega(2012) resonance in a coupled-channel approach containing both of the three-quark Omega(2012) and the dynamically generated Omega as a Kbar Xi* molecule. In 2024 FY, we improve our model by including the eta-Omega coupling to the three-quark Omega(2012), and we are now trying to estimate the effect of that channel. We have visited to China to discuss our Omega(2012) collaboration and we are applying our method to heavy Omega_c baryon. In July 2024 and March 2025, Prof. Lyu have visited RCNP and we have discussed about Omega and Omega_c systems. We are now continuing our collaboration and now preparing an article.
7	Amount of budget implemented (for internal use only)		373620 YEN