

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 and zoom	
5	Publication list (Please include DOI if available)	Articles		
		Talks	Internal Structure of Omega(2012) baryon in a coupled-channel approach, presented by H. Nagahiro, at the 2023 Fall joint meeting of APS and JPS (haw23)	
			informal seminar (COREnet meeting (by Prof. Tanida))	
			informal seminar (Invited seminar at Nagoya University, Quark-Hadron theory group.)	
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 2023 FY, we investigated the pole-flow of the Omega(2012) by varying the amount of the mixing and found that the final pole position can be largely explained by a simple consideration with a one-loop correction for the three-quark Omega. We conclude that the effect of the re-scattering Kbar Xi* is small for physical Omega(2012). We found another pole than Omega(2012) above the Omega(gs) eta threshold, which might correspond to a higher excited Omega particle. We are going to include an additional channel, Omega(ground state) eta which may give a large contribution for the higher state. ZOOM meetings continue on a monthly basis and a visit to China is planned for June 2024 to discuss with collaborators. They will also come to the RCNP in July to discuss collaborative research.	
7	Amount of budget implemented (for internal use only)		580,000 Yen implemented and 0 Yen used.	

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