

Report of RCNP International Joint Usage/Joint Research			
J022		PI: Hiroyuki Sako	
1	Title of reserch		Q056: A beam test of prototype Aerogel Cherenkov counters and the Start timing Counters for J-PARC E88 at LEPS2
2	List of collaborators		Hiroyuki Sako (JAEA), Susumu Sato (JAEA), Genki Nukazuka (JAEA), Wooseung Jung (JAEA), Motoi Inaba (Tsukuba Institute of Technology), Ryo Sato (University of Tsukuba)
3	Period of research		July 2025, Feb. 2026
4	Publication list	Articles	
		Talks	H. Sako, Studies of vector mesons in nuclei in proton-nucleus collisions, Baryons 2025, Jeju, Nov. 2025 H. Sako, Studies of the in-medium modification of the phi meson mass in nuclei at J-PARC, ExHIC-d 2025, Jeju, Nov. 2025 H. Sako, Study for the modification of the f meson mass and chiral-symmetry restoration in nuclear density at J-PARC, Hyp2025, Tokyo, Sep. 2025. Wooseung Jung, Kaon Identification System Development for In-Medium ϕ Meson Mass Measurement in J-PARC E88/SAΦRE, JPS (Online), March 2026.
		Theses	
5	Description of the results and outputs		We performed the beam test of MRPCs at LEPS2 in July 2025 and Feb. 2026. In July 2025, we tested two MRPCs with the old MRPC with a string spacer and a carbon electrode (EEEC), and a new MRPC with a seal spacer and a new electrode (Colcoat CS-6301), The timing resolution of the new MRPC was not better than 115 ps, due to gas leak and discharge issues. With the old MRPC, we measured the temperature dependence of the timing resolution with the plane heater to raise the temperature of the glass stack. The resulting timing resolution improved from 118 ps to 106 ps from T=295K to 315K. In Feb. 2026, we tested the new MRPC after repairing the gas leak and discharge issues. However, the gain was too low, and the timing resolution was not better than 114ps.