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Fabrication progress of the prototype spoke cavity for the JAEA-ADS linac

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The Japan Atomic Energy Agency (JAEA) has been proposing an accelerator-driven system (ADS) as a future nuclear system to efficiently reduce high-level radioactive waste generated in nuclear power plants. As a first step toward the full-scale design of the CW proton linac for the JAEA-ADS, we are now prototyping a low-beta (around 0.2) single-spoke cavity. The actual cavity fabrication started in 2020. Most of the cavity parts were shaped in fiscal year 2020 by press-forming and machining. In 2021, we started welding the shaped cavity parts together. By preliminarily investigating the optimum welding conditions using mock-up test pieces, each cavity part was joined with a smooth welding bead. So far, we have fabricated the body section and the beam port section of the cavity. By measuring the resonant frequency of the temporarily assembled cavity, we have confirmed that there is no significant problem with the cavity fabrication. In this paper, fabrication progress of the prototype spoke cavity is presented.

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Footnotes

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Yes

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