## First ECFA WORKSHOP.

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## Prospects of $B_c^+ and B^+ \rightarrow \tau \nu$ decays at FCC-ee

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The Z-pole operation at FCC-ee presents an unprecedented opportunity for heavy flavor physics, as the production of  $5 \times 10^{12}$  Z bosons will result in about  $8 \times 10^{11}$  b-quark pairs. Among all species of B hadrons produced at FCC-ee, the purely leptonic decays of the  $B_c^+$  and  $B^+$  mesons are clean experimental probes to measure the off-diagonal CKM elements  $|V_cb|$  and  $|V_ub|$ , and are highly sensitive to test BSM models such as charged Higgs bosons and leptoquarks. A complete feasibility study of the  $B_C^+$  to  $\tau^+\nu_{\tau}$  measurement at FCC-ee is performed and its phenomenological impact on various new physics scenarios is explored. Recent developments have also been made in the measurement of the  $B^+$  to  $\tau^+\nu_{\tau}$  decay, demonstrating the feasibility of this measurement with a precision comparable to that of  $B_c^+$ . This set of work also showcases the FCC-ee analysis workflow fully based on common software tools from EDM4hep through to final analysis.

**Presenter:** ZUO, Xunwu (Karlsruhe Institute of Technology) **Session Classification:** WG 1 - FLAV

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