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Freeze-in Dark Matter Through Forbidden Channel in $U(1)_{B-L}$

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We examine a scenario for freeze-in production of dark matter, which occurs due to the large thermal correction to the mass of a decaying mediator particle present in the thermal bath of the early Universe. We show that the decays, which are kinematically forbidden otherwise, can open up at very high temperatures and dominate the dark matter production. We explore such forbidden production of dark matter in the minimal $U(1)_{B-L}$ model, comparing dark matter phenomenology in the context of forbidden frozen-in with the standard picture.

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Session Classification: Break and Poster Session