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Production of Inert Scalars at the e^+e^- Linear Colliders

We investigate the phenomenology of the charged and neutral scalars in Inert Doublet Model (IDM) at future e^+e^- linear colliders with center of mass energies of 0.5 to 1 TeV and integrated luminosity of 500 fb⁻¹. The analysis covers two processes, i.e. $e^+e^- \rightarrow H^+H^-$ and $e^+e^- \rightarrow AH$, and consists of a phenomenological signal selection as well as dark matter mass measurement. Several benchmark points are studied with focus on $H^\pm \rightarrow W^\pm H$ and $A \rightarrow ZH$ decays. It is concluded that the signal should be well observable in different final states and by combining information from different channels the dark matter mass should also be measurable with a reasonable precision.

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