

ALEGRO

Physics Case -WG1

M. E. Peskin
Oxford Meeting
March 2018

We propose a 20-page chapter with following content:

Summary of physics case for 91 GeV, 250 GeV, 1 TeV e^+e^-
(drawing on the ILC and CLIC submissions to ESG2020)

Introduction to 30 TeV / 10^{36} accelerator goals

Discussion of e^+e^- vs $\gamma\gamma$ as the basic colliding species;
model luminosity spectra

Standard Model physics at 30 TeV

summary of cross sections

very simple detector model

simulation of $e^+e^- \rightarrow \mu^+\mu^-, \tau^+\tau^-, b\bar{b}$

simulation of W fusion processes

Beyond Standard Model physics at 30 TeV

philosophy: first signs seen already, now we must
explore the full model

discussion of 3 illustrative examples:

“Thermalization/Higgspllosion”

10 TeV leptoquarks, relevant to LHCb anomalies

a composite Higgs model in Randall-Sundrum description

The organization should follow the conventions of the particle physics community:

Anyone who contributes can join the author list
The final report will be published on the arXiv