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# Mini-Workshop on BSM at ILC and other future $e^+e^-$ machines

Feb 28<sup>th</sup>, Mar 2<sup>nd</sup> 2022

In the framework of ILC-IDT Working Group 3:  
<https://linearcollider.org/team/wg3/physics/>

Organizing Committee:

Mikael Berggren (DESY)  
Shigeki Matsumoto (Tokyo U., IPMU)  
Simone Pagan Griso (LBNL)  
Werner Porod (Wuerzburg U.)

## Goals of the workshop and news

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The **intention of this workshop** is two-fold:

- give the opportunity to present the current status of your work, with particular emphasis to material being prepared for the Snowmass process;
- start to keep track of ILC-related activities in this area and potentially form small working groups focusing on open ILC related aspects
  - Twiki-page in preparation; it will be advertised on [ilc-phys-bsm@ml.post.kek.jp](mailto:ilc-phys-bsm@ml.post.kek.jp)

Aim for a strong synergy with developments towards other  $e^+e^-$  machines.

**Snowmass ILC whitepaper** draft is available at

<https://agenda.linearcollider.org/event/9135/>

Comments are welcome and we encourage all of those interested in endorsing this report to join the list of signatories by completing the Registration at the site above. If you'd like your work to be featured in as well, please send us a couple of paragraphs and - time allowing - we'll do our best to include them.

## Two-hours sessions with ample time for discussion

### Monday

07:00	Next-to-leading-order corrections to the $e^+e^- \rightarrow hZ$ process in extended Higgs models	Mr Masashi Aiko 07:00 - 07:20
	The search for Leptophilic dark matter and $(g-2)_\mu$ at future lepton colliders	Taisuke Katayose 07:20 - 07:40
	Alternative searches of quintuplet fermions at ILC	Nilanjana Kumar 07:40 - 08:00
08:00	TBA	Ipsita Saha 08:00 - 08:20
15:00	Stau Searches at the ILC	Maria Teresa Núñez Pardo de Vera 15:00 - 15:15
	Dark matter production with light mediator exchange at future $e^+e^-$ colliders	Aleksander Filip Zarnecki 15:20 - 15:35
	BSM Higgs bosons	Sven Heinemeyer 15:40 - 15:55
16:00	Measuring neutrino dynamics via light higgsinos and sneutrinos	Harri Waltari 16:00 - 16:15
	Heavy Neutrinos at Future Linear $e^+e^-$ Colliders	Krzysztof Mekala 16:20 - 16:35

### Wednesday

07:00	Light leptonic forces for $(g-2)$ and B-anomalies	Seong Chan Park 07:00 - 07:20
	Stau study at the ILC and its implication for the muon $g-2$ anomaly	Shin-ichi Kawada 07:20 - 07:40
	Search for Higgs decaying to exotic scalars at the ILC	Yu Kato 07:40 - 08:00
08:00	Testability of CP-even axion-like particle at ILC	Kodai Sakurai 08:00 - 08:20
15:00	Sensitivity for Long-Lived particles at FCC-ee	Juliette Alimena 15:00 - 15:15
	Sensitivity to long-lived dark photons at the ILC	Nosler Laura 15:20 - 15:35
	Low mass scalars at $e^+e^-$ colliders	Tania Natalie Robens 15:40 - 15:55
16:00	Phenomenology of dark matter in complex scalar singlet extensions of Two Higgs doublet models	Juhi Dutta 16:00 - 16:15
22:00	Testing the neutrino mass generation mechanism at the future colliders	Anindam Das 22:00 - 22:15
	Probing U(1) extended Standard Models at ILC	Nobuchika Okada 22:20 - 22:35
	The string landscape predicts: light higgsinos at ILC	Howard Baer 22:40 - 22:55
23:00	A Theory of Dark Pions	LINGFENG LI 23:00 - 23:15