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New techniques for use of public likelihoods for reinterpretation of search results

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With the lack of experimental evidence for weak-scale SUSY in simple scenarios, focus is shifting to strengthening exclusion limits on many models. One of the simplest mechanisms has been by the introduction of multi-bin fits in analyses. However, these pose a difficult problem for phenomenologists wanting to test their models: insufficient information is made available to fully evaluate the search strength in a different model, and when the information is made available, it is difficult to use and interpret, and comes in a format that cannot be easily read by a person. New software has been developed for the purpose of working with likelihoods, particularly for reinterpretation, entirely outside of the ROOT framework. This software includes a human-readable JSON format for the search likelihood, and can completely replace the traditional ROOT HistFactory implementation. It relies on modern software libraries, and can therefore run on GPUs as well as CPUs. In this talk, the tools for the use of this likelihood software towards reinterpretation will be discussed.

Presenter: STARK, Giordon Holtsberg (University of California,Santa Cruz (US))

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