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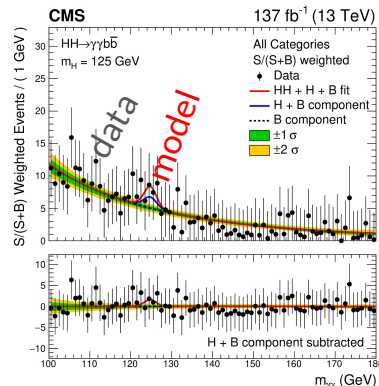
presenting today

DEMOS - Democratizing MODELS infrastructure for FAIR research models

- Vision**
 - Make scientific models FAIR — Findable, Accessible, Interoperable, Reusable
 - Boost scientific discovery by democratizing access to complex research models
 - Break silos across ErUM disciplines by enabling sharing, combining, reinterpreting and remixing by establishing a joint research pipeline and statistical software stack
- Core Idea**
 - Access to full statistical model boosts reuse-value of published studies
 - Unified DEMOS model standard for probabilistic & computational models
 - Development of common software stack for serializing, using & reusing public models
 - Cross-disciplinary model-sharing platform & registry
- Impact**
 - Cross-domain ecosystem for model preservation, execution, combination
 - Reproducible science across ErUM
 - Foundation for next-generation open science & education

Showcase Models (Selections)

- Exotic Hadron Models (P_c , T_{cc} , $\chi c1(3872)$, COMPASS) — RUB-H + MPP
- $B \rightarrow K^*(\ell \ell)$ & BELLE II/HF models — LMU + MPP
- BESIII $Z_c(3900)$ amplitude model — JGU
- NN potentials from chiral EFT — RUB-N
- Neutrino oscillation likelihoods — TUM + MPP
- Astroparticle propagation models (CRPropa etc.) — RUB-A
- Laser/WDM structure-factor models & scattering — HZDR
- 2012 Higgs discovery models (HS3 reserialization) — UHH



- Pillar 1 — Standardization**
 - DEMOS Modeling Language
 - Lead: UHH
 - Domain-specific contributions: HZDR (LP), RUB-A (AP), RUB-N (NP), RUB-H (HP), TUM (NuP)
 - Engines in C++, Python, Julia
 - C++: UHH + JGU
 - Python: LMU + SC + TUM
 - Julia: HZDR + RUB-H + MPP
 - Complex amplitudes, matrices, static typing compatibility
 - UHH + RUB-H + JGU
- Pillar 2 — Infrastructure**
 - Portal & Model Gallery (metadata, visualization) — RUB-H
 - Model Registry + CI/CD backend — HZDR
 - Interoperability with HEPData, Zenodo, repositories — UHH
 - LLM-powered search (RAG) — RUB-H
 - Binder/interactive execution — RUB-H + TUM
- Pillar 3 — Community & Sustainability**
 - Documentation, workshops, tutorials — RUB-H + JGU + TUM
 - Showcasing models across all ErUM domains — Each institute delivers own domain's models
 - Steering committee, governance, release cycles — UHH

