Passed to professional designer last week

Hadron Physics DSL

DSL and primitives

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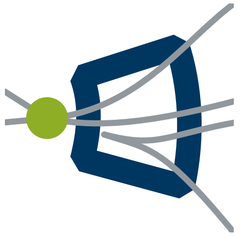
Stefan Wallner, Niels Hüsken, Hendric Jonas, Alexander Kazatsky, others…



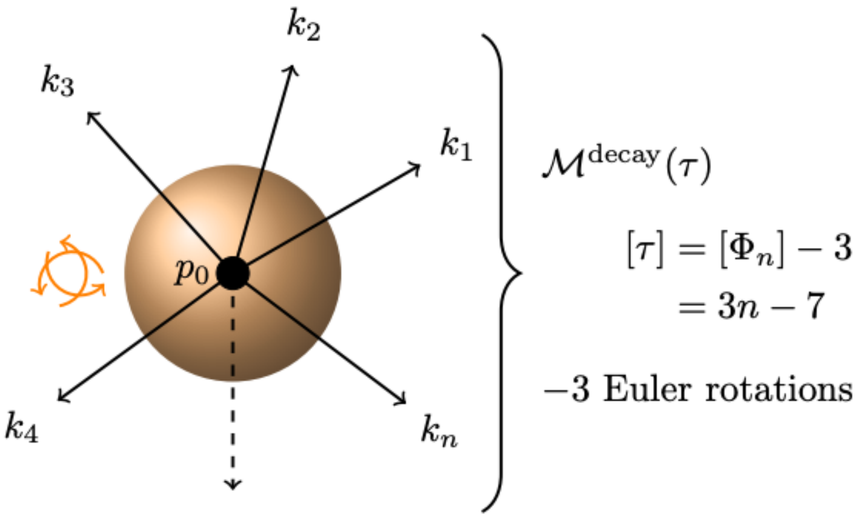
Phase space is pdf domain

native support (engines know how to sample)

- $p(x \mid \theta) \rightarrow \mathbb{R}^{4n}$

- x is point in phase space
- $x = (k_1, k_2, \ldots)$
- x satisfies energy-momentum conservation

$$E = E_1 + E_2 + \ldots$$
$$\vec{k} = \vec{k}_1 + \vec{k}_2 + \ldots$$



- Many possible sampling algorithms (*execution details*) to achieve the **same thing** — phase-space distribution

Four vector algebra

Native support

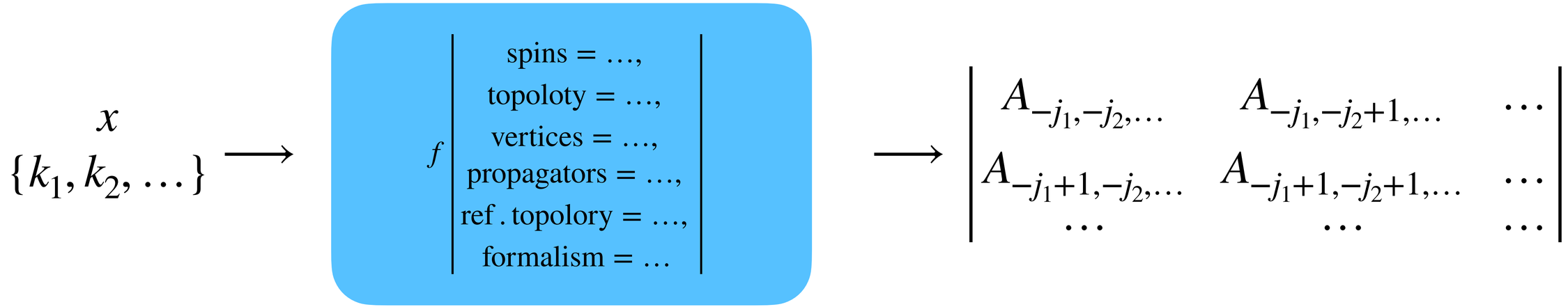
- Scaler production

- Standard tensors $g_{\mu\nu}$, $O_{\mu\nu} = g_{\mu\nu} - \frac{p_\mu p_\nu}{p^2}$, $O_{\mu\nu,\alpha\beta}$

- Spinors, and polarization vectors

Cascade amplitude DSL

The complex **standard** block that will connect people



- Define complex but standard function on four-vectors
- Small building block for $n \times 100$ models

Next steps

- Overleaf document fixing building blocks

$$f\left|\begin{array}{c}\text{spins} = \ldots,\\ \text{topoloty} = \ldots,\\ \text{vertices} = \ldots,\\ \text{propagators} = \ldots,\\ \text{ref}\,.\,\text{topolory} = \ldots,\\ \text{formalism} = \ldots\end{array}\right.$$

- Interface to major existing frameworks to relate to the **standard** *[writing]*
- Reference engine for *[reading]*
- Collaboration policy