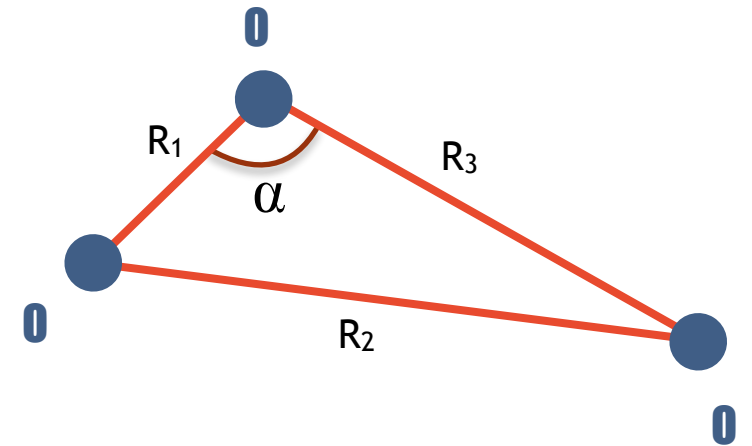
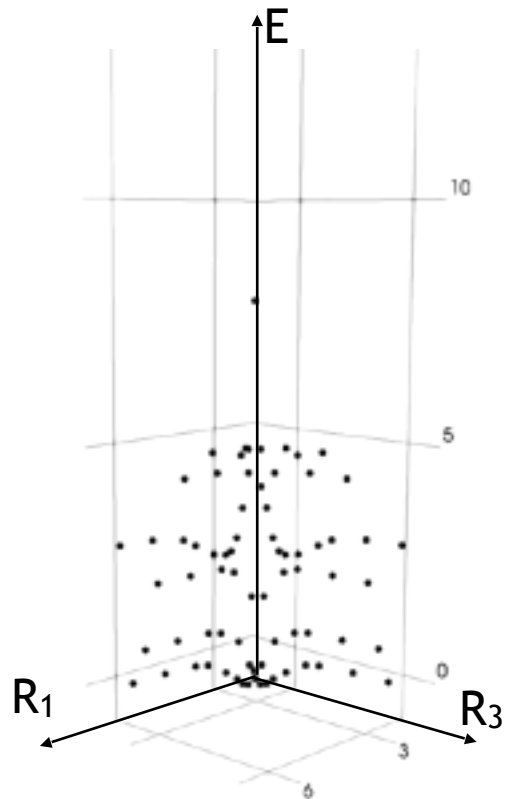


# Motivation: PES

Potential Energy Surfaces (PESs) are functions that describe the **quantum-physics interactions between atoms**.

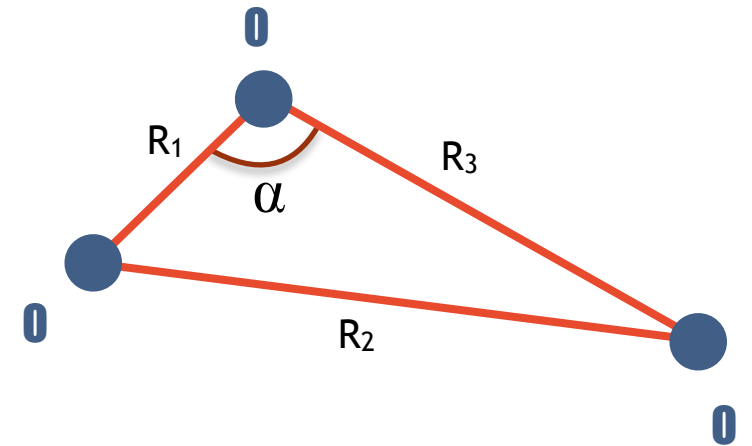
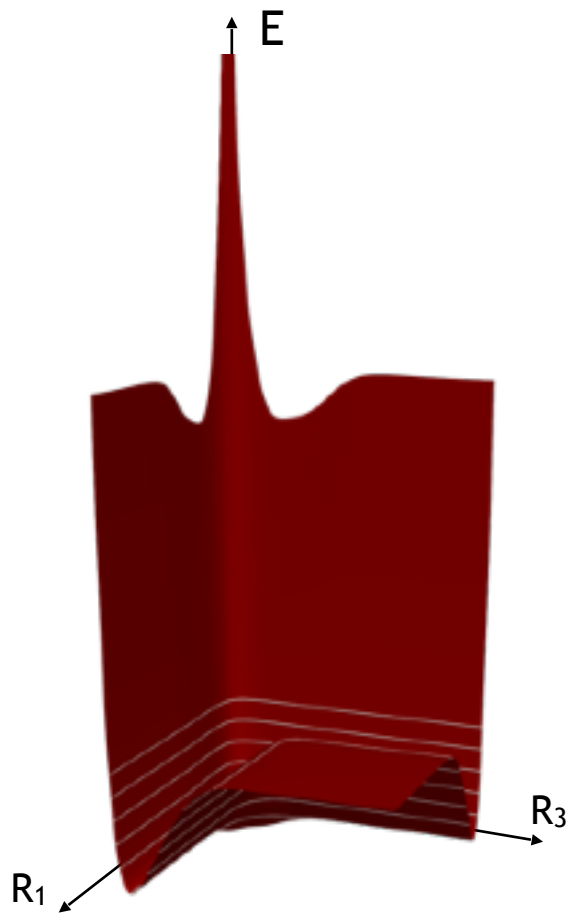


## Ab-Initio PES Generation Process:

1. A large number of atom **geometric arrangements** ( $R_1, R_2, R_3$ ) is selected;
2. **Electronic Schrödinger Eq.** is solved at such arrangements;
3. The resulting energies are **fit to analytical expressions**.

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Each research group typically has its distinctive protocols to PES generations.

The result is that the surfaces for a given collisional system are diverse from one laboratory to the other.

- The process is extremely time consuming;
- There is no systematic approach in place in order to evaluate the “cost” of such differences.