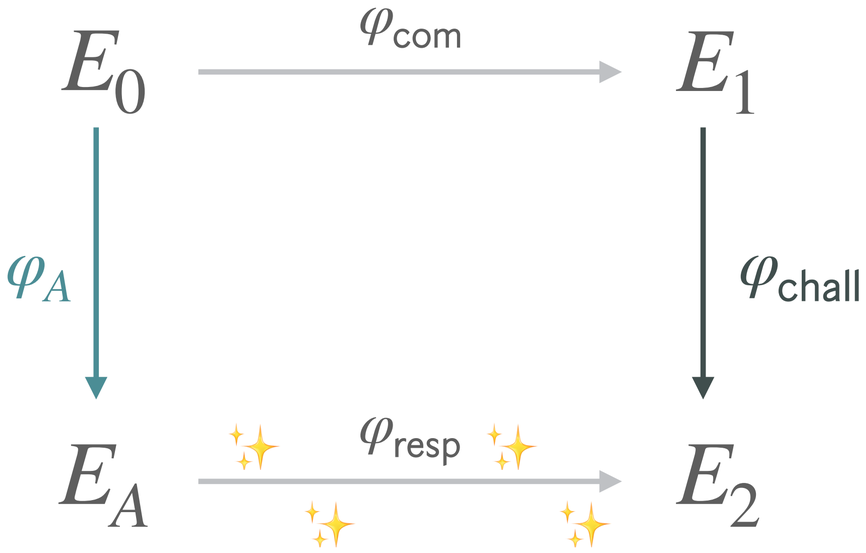
PART 3

# New Dimensions

## HD representations

instead of describing 1D isogeny $\varphi : E \to E'$ by its kernel $\ker \varphi$,
we can also describe it by $E, P_1, \ldots, P_n, \varphi(P_1), \ldots, \varphi(P_n)$, for enough points $P_i \in E$

then, with Kani's lemma & improvements, compute $\varphi(Q)$ for any other $Q \in E$



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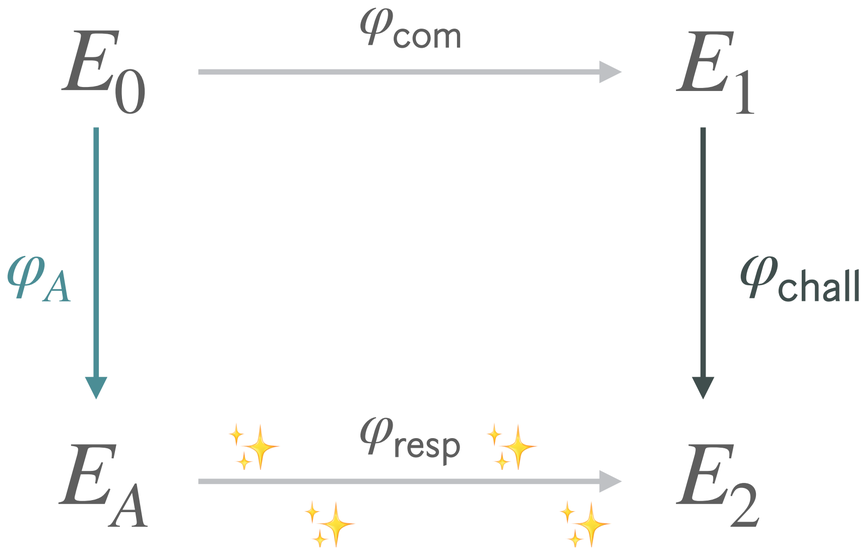


**1** instead of (slow) translation of $I_{\text{resp}}$ to $\varphi_{\text{resp}}$ in 13 blocks....

**2** HD representation: $E_A$ is known, give points $P_i$ and $\varphi_{\text{resp}}(P_i)$