

2. Can we do multiphysics
“compositionally”?

Constituent components of diffusion

Understanding equations as conjunctions of principles

- Diffusion of a substance on a 3-manifold is governed by physical quantities
 - concentration $C \in \Omega_t^0$
 - (negative) diffusion flux $\phi \in \widetilde{\Omega}_t^2$
 - diffusivity $k \in \Omega^0$
- ... which satisfy
 - $\partial_t C = \star d\phi = \star d(k\star)dC$