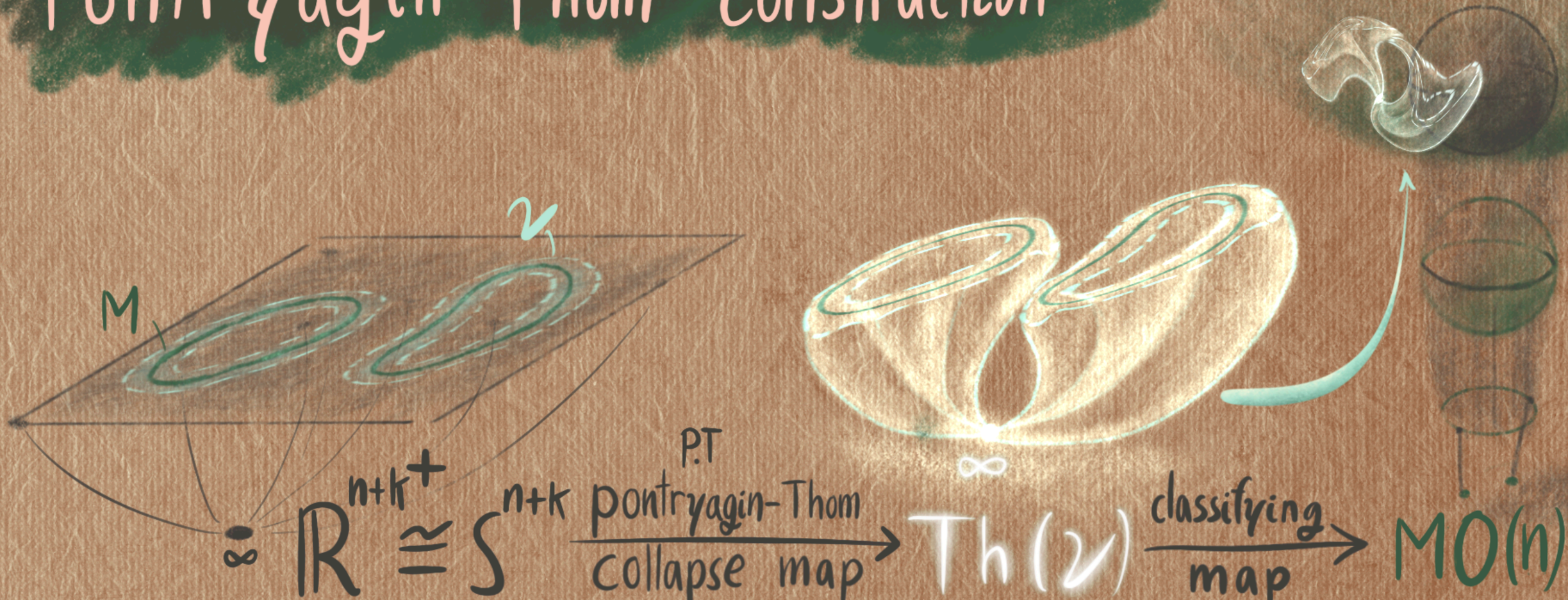
# Pontryagin Thom construction



# Stable normal bundles

$M^k \hookrightarrow \mathbb{R}^{n+k}$ n shouldn't matter!! as long as it's big enough

$\mathbb{R}^{n+k} \hookrightarrow \mathbb{R}^{n+k+1}$ induces $\nu \to \nu \oplus 1$ ← trivial line bundle

$n \gg 1 \Rightarrow$ space of embedings is connected $\Rightarrow$ all normal bundles iso. "stable normal bundle"

$(X \times I)_+ = X_+ \wedge I_+ = X_+ \wedge S^1 = \Sigma X \Rightarrow Th(\nu \oplus 1) = \Sigma Th(\nu)$

$\nu \to \nu \oplus 1 \Rightarrow BO(k) \to BO(k+1)$