

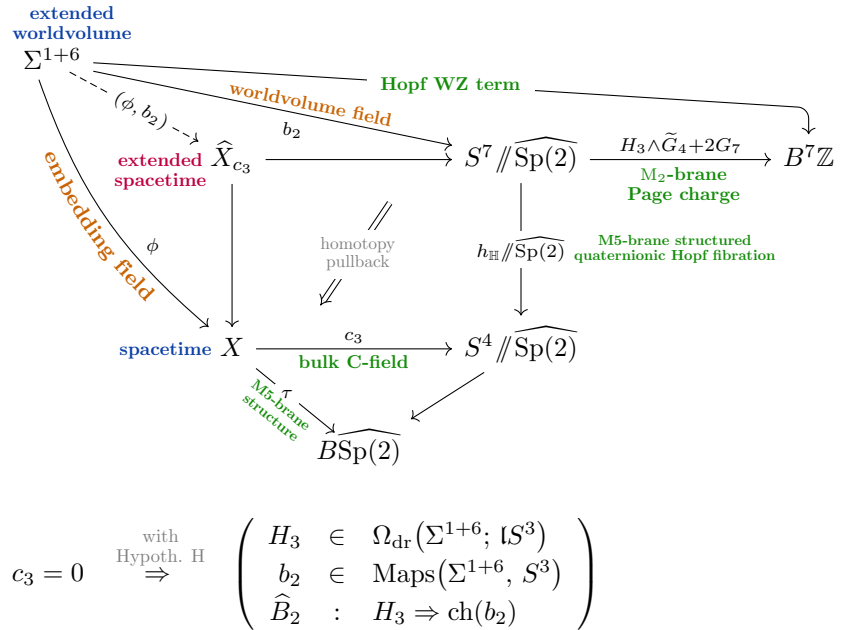
### 2.1.2 The fundamental Fivebrane sigma-model under Hypothesis H

The Fivebrane sigma-model is that whose topological (“Hopf”-)WZ term is the background M2-brane’s Page charge, which by Hypothesis H is classified on the tangentially twisted quaternionic Hopf fibration over the 4-sphere coefficient of the background M5-brane charge. [FSS21-M5a].

**$H_3$  cohomotopical flux-quantization.** Since the fiber of the quaternionic Hopf fibration is the 3-sphere, it follows from Hypothesis H that the worldvolume  $H_3$ -flux on the Fivebrane is quantized in 3-Cohomotopy twisted by the pullback of the bulk C-field along the Fivebrane’s embedding field [FSS20-HpH1, §3.7] [FSS21-M5a, §4][SS20-GS].

In particular, when the background C-field vanishes, then the worldvolume B-field is flux-quantized in the plain 3-Cohomotopy of the Fivebrane’s extended worldvolume.

**Non-abelian gerbe structure.** It turns out [FSS21-M5b] that this 3-Cohomotopical flux quantization makes the Fivebrane’s worldvolume B-field behave like a “non-abelian gerbe” field (as originally suggest by [Wi04, p. 16 & 15]) with structure a twisted String-2-group (as previously hypothesized in [SäSc18]).



**On two coincident M5s.** Indeed, careful analysis [FSS21-M5a, Thm. 4.8] shows that it is only *twice* the traditional Hopf WZ term which is generally integral, and (hence) that flux quantization in Cohomotopy sees the Fivebrane sigma model as that of *two coincident* M5-branes, carrying a non-abelian  $SU(2)$ -gauge field.

