Rational Homotopy Theory Seminar

Week 9 Problems

Jeremy Mann

1. Homotoping f, ω, η in the second definition of the Hopf invariant doesn't change "$H(f)$". Hint: use Stokes theorem.

2. Define $B = S^3 \setminus K$ where K is the Borromean rings.

   (a) Compute H^*B as a group

   (b) Find a minimal model for B. Interpret the products in the minimal model using cup product.

   (c) Interpret these elements in terms of God

3. Varying choices in the definition of the Massey product changes $\langle x, y, z \rangle$ by an element in $\{xH^*(\mathcal{M}) + zH * (\mathcal{M})\}$.