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*Hyperelliptic function fields*

Hyperelliptic curves are objects of algebraic geometry and as such, typically described over algebraically closed fields. One invariant between equivalent hyperelliptic curves is their field of rational functions. These are commonly referred to as hyperelliptic function fields. In addition, the points on the curve are in one-to-one correspondence with the maximal subrings of their rational function field. If we disregard the geometry and relax the condition of algebraic closure, the problem then becomes finding and describing all the maximal subrings of a hyperelliptic function field.

We will briefly elaborate on the motivation for describing these maximal subrings. We will then show how each maximal subring gives an absolute value on the function field. With these absolute values we will then construct completions and use them to find and describe all maximal subrings.

I will attempt to keep this talk as accessible as possible by giving examples and descriptions of all terminology along the way.