Using towers of 2-covers of hyperelliptic curves to find rational points

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Abstract. In this talk we will discuss how one can combine unramified Abelian covers and Chabauty-methods to determine the rational points on a curve of genus 2. As an interesting example, we will look at the genus curve arising from the question whether the sum of the first n fourth powers can ever be a square. This curve resists a simple application of the construction we propose. However, we find a way to apply the construction twice, which does enable us to find all rational points on the original curve.