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A genus 2 curve C has an elliptic subcover if there exists a degree n maximal covering $\psi : C \rightarrow E$ to an elliptic curve E . Degree n elliptic subcovers occur in pairs (E, E') . The Jacobian J_C of C is isogenous of degree n^2 to the product $E \times E'$. We say that J_C is (n, n) -split. The locus of C , denoted by \mathcal{L}_n , is an algebraic subvariety of the moduli space \mathcal{M}_2 .

We give a brief description of the spaces \mathcal{L}_n for a general n and then focus on small n . We describe some of the computational details how to compute explicitly the space \mathcal{L}_n . Furthermore, we explicitly describe the relation between the elliptic subcovers E and E' . We have implemented most of these relations in computer programs which check easily whether a genus 2 curve has $(2, 2)$ or $(3, 3)$ split Jacobian. In each case the elliptic subcovers can be explicitly computed. (Received September 10, 2008)