Eichler orders, trees and representation fields

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The spinor class field for a genus of orders of maximal rank in a quaternion algebra a over a number field K is an abelian extension ?/K provided with a distance function associating elements of the corresponding Galois group to pairs of orders in that genus. If H ? D are two orders in a quaternion algebra a with D of maximal rank, the representation field F = F(D | H) is a subfield of the spinor class field for the genus of D such that, the set of spinor genera of orders in that genus representing the order H, coincides with the set of spinor genera of orders whose distance to D fixes F pointwise. Previous works have focused on two cases: maximal orders D and commutative orders H. In this work, we give a method to compute the representation field F(D|H) when D is the intersection of a finite family of maximal orders, e.g., an Eichler order, and H is arbitrary. Examples are provided.