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Ring isomorphism of cyclic cyclotomic algebras

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For division algebras whose Brauer classes lie in the Schur subgroup of a cyclotomic number field, a theorem of Spiegel and Trojan provides a necessary and sufficient condition to be ring isomorphic. Using this result, we show that ring isomorphism between cyclic cyclotomic algebras over cyclotomic number fields is essentially determined by the list of local Schur indices at all rational primes. As a consequence, ring isomorphism between simple components of the rational group algebras of finite metacyclic groups is determined by the center, the dimension over $\mathbb{Q}$, and the list of local Schur indices at rational primes.

The talk relies on joint work with Allen Herman and Ángel del Río.