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Stefaan Caenepeel* (scaenepe@vub.ac.be), Pleinlaan 2, 1050 Brussels, Belgium, and **Bojana Femic**. *Harrison cohomology for commutative Hopf algebroids*.

We generalize Harrison's complex to commutative bialgebroids; this new cohomology unifies Amitsur, Harrison, Sweedler and group cohomology; it can also be applied to develop Harrison cohomology for commutative weak Hopf algebras. We can give algebraic interpretations of the lower cohomology groups; from these we recover classical results such as the crossed product theorem, the Hilbert 90 theorem and the normal basis theorem. (Received January 31, 2008)