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There is no "Weil-"cohomology theory with *real* coefficients for arithmetic curves

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Abstract. A well-known argument by Serre shows that there is no Weil cohomology theory with real coefficients for smooth projective varieties over $\overline{\mathbb{F}}_p$. In this note we explain why no "Weil-"cohomology theory with real coefficients can exist for arithmetic schemes over spec Z, even for spectra of number rings.

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