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Group cohomology with group ring coefficients

For an infinite discrete group G , the group cohomology $H^*(G; \mathbb{Z}G)$ with coefficients in the integral group ring inherits a $\mathbb{Z}G$ -module structure. We are interested in obtaining information about this natural $\mathbb{Z}G$ -module in low dimensions, or for special classes of groups such as right-angled Artin groups. The results have applications in describing the homotopy type of closed 4-manifolds with a given finitely presented group G as fundamental group.