

# Poincaré series of the spaces of commuting elements

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Let  $G$  be a compact connected Lie group, and let  $\text{Hom}(\mathbb{Z}^m, G)$  denote the space of commuting  $m$ -tuples in  $G$ . Baird proved that the cohomology of  $\text{Hom}(\mathbb{Z}^m, G)$  is identified with a certain ring of invariants of the Weyl group of  $G$ . Therefore the cohomology of  $\text{Hom}(\mathbb{Z}^m, G)$  is important not only in topology but also in representation theory. I will talk about the Poincaré series of the cohomology of  $\text{Hom}(\mathbb{Z}^m, G)$  for classical groups  $G$  and some applications. This talk is based on joint work with Daisuke Kishimoto.