From the Duflo isomorphism to the Riemann-Roch theorem

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The Taylor series associated to x/sinh(x) appears in three seemingly unrelated problems: in the Duflo theorem (which appears in the representation theory of finite dimensional Lie algebras), in Kontsevich's theorem on complex manifolds (dealing with the existence of a ring isomorphism between the cohomology of polyvector fields of a complex manifold and its Hochschild cohomology), and in the Riemann-Roch theorem (in the form of the Todd class). In my talk I shall try to explain how these three problems are related, starting with some ideas due to Roberts and Willerton.

This is joint work in progress with Simon Willerton.