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Intersection spaces, equivariant Moore approximation and the signature. (English)

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This paper extends the first author's construction of intersection spaces to Thom-Mather stratified pseudomanifolds of stratification depth 1 whose link bundles allow for structure groups with equivariant Moore approximations. The authors "use equivariant Moore approximations to construct fiberwise homology truncation and cotruncation" and find a new set of characteristic classes which vanish for global products and for flat bundles whose base has finite fundamental group.

The main result establishes that "the reduced rational cohomology of the intersection spaces satisfies global Poincaré duality across complementary perversities if the characteristic classes vanish." The paper is well written and clearly structured. It includes the necessary definitions and results on homotopy pushouts, equivariant Moore approximations, presheaves together with an associated local to global technique and Thom-Mather theory. The final chapters contain new results on the Goresky-MacPherson intersection homology signature of pseudomanifolds and "discuss equivariant Moore approximations for linear sphere bundles and symplectic toric manifolds."

Reviewer: [Beatrice Bleile \(Armidale\)](#)

MSC:

[55N33](#) Intersection homology and cohomology in algebraic topology

[57P10](#) Poincaré duality spaces

[55R10](#) Fiber bundles in algebraic topology

[55R70](#) Fibrewise topology

Cited in **3** Documents

Keywords:

stratified spaces; pseudomanifolds; intersection homology; Poincaré duality; signature; fiber bundles

Full Text: [DOI](#) [arXiv](#)