



Morse matchings on polytopes

R.M. Green, Jacob T. Harper

(Submitted on 25 Jul 2011)

We show how to construct homology bases for certain CW complexes in terms of discrete Morse theory and cellular homology. We apply this technique to study certain subcomplexes of the half cube polytope studied in previous works. This involves constructing explicit complete acyclic Morse matchings on the face lattice of the half cube; this procedure may be of independent interest for other highly symmetric polytopes.

Subjects: **Geometric Topology (math.GT)**; Combinatorics (math.CO)

MSC classes: 52B11

Cite as: **arXiv:1107.4993 [math.GT]**
(or **arXiv:1107.4993v1 [math.GT]** for this version)

Submission history

From: Richard Green [[view email](#)]

[v1] Mon, 25 Jul 2011 16:30:44 GMT (18kb)

[Which authors of this paper are endorsers?](#)

Link back to: [arXiv](#), [form interface](#), [contact](#).

Download:

- [PDF](#)
- [PostScript](#)
- [Other formats](#)

Current browse context:

math.GT

[< prev](#) | [next >](#)

[new](#) | [recent](#) | [1107](#)

Change to browse by:

[math](#)
[math.CO](#)

References & Citations

- [NASA ADS](#)

Bookmark([what is this?](#))

