A Manual for the Template Class Library `igpm_t_lib`

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Abstract

This is a manual for the C++ template library `igpm_t_lib` providing

i) a vector class (`tvector_n`),

ii) a multidimensional index class (`tmultiindex`) and several supporting classes for multidimensional access (`tlevelmultiindex`, `tpackedltmi`, `tmultirange`),

iii) various hash-table classes (`thashmap`, `thashmap_linked`, `thashmap_linked_one`) and

iv) a memory management class (`tmemheap`).

These classes are designed in view of applications to local multi-scale transformations. We outline the design criteria from algorithmic requirements by means of an example and explain how to realize it using the library classes.

Key Words: template classes, hash-maps, sparse data structures

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