



Institut of Numerical Mathematics

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Quiz 4

## High Performance Computing I (WS 2019/2020)

Deadline: 13 December 2019, 2pm

This quiz is based upon the final step of the 15th session. Move your template function that implements the multithreaded matrix-matrix multiplication into a separate header file named *mm-mt.hpp* that provides following interface:

```
template <
    template<typename> class MatrixA,
    template<typename> class MatrixB,
    template<typename> class MatrixC,
    typename T, typename Alpha, typename Beta,
    Require<
        Ge<MatrixA<T>>, Ge<MatrixB<T>>, Ge<MatrixC<T>>
    > = true
>
void mm(Alpha alpha, const MatrixA<T>& A,
        const MatrixB<T>& B, Beta beta,
        MatrixC<T>& C,
        std::size_t nof_row_threads,
        std::size_t nof_col_threads) {
    /* ... your part ... */
}
```

A sample header file is provided at following URL:

<http://www.mathematik.uni-ulm.de/numerik/hpc/ws19/quizzes/mm-mt.hpp>

Please submit your solution with following command on Theon:

```
theon$ submit hpc quiz04 mm-mt.hpp
```

Please note that the test suite includes tests where the number of threads in a row or column exceeds the number of rows or columns.