**Test 1**

Mesh Parameterization Test.

Part I: Mesh generation

mesh information:

the number of vertices: 263169

the number of faces: 526303

Part II: Mesh decomposition

decomposition informations:

the number of decompositions: 512

the minimum size of all subdomains: 405

the maximum size of all subdomains: 474

the mean size of all subdomains: 426

the size of the edge and wirebasket: 44733

mesh size / edge-wirebasket size: 5.883106

Part III: Pretreatment for the parameterization

Part IV: Parameterization using the local-global method

The local-global iteration time is: direct solver: 32, PCG solver: 28

The Schur iteration/running time per local-global step of all solvers are given as follows:

Direct Solver PCG

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Local-Global Iterations 32 28

Iterations/Local-Global Step 0 18

Running Time/Local Global Step 0.78743 4.6017

The RMS error between the solution from direct solver and the solution from the PCG solver is 0.000829

**Test 2**

Mesh Parameterization Test.

Part I: Mesh generation

mesh information:

the number of vertices: 263169

the number of faces: 526303

Part II: Mesh decomposition

decomposition informations:

the number of decompositions: 256

the minimum size of all subdomains: 882

the maximum size of all subdomains: 964

the mean size of all subdomains: 906

the size of the edge and wirebasket: 31095

mesh size / edge-wirebasket size: 8.463386

Part III: Pretreatment for the parameterization

Part IV: Parameterization using the local-global method

The local-global iteration time is: direct solver: 32, PCG solver: 27

The Schur iteration/running time per local-global step of all solvers are given as follows:

Direct Solver PCG

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Local-Global Iterations 32 27

Iterations/Local-Global Step 0 15

Running Time/Local Global Step 0.75309 3.1221

The RMS error between the solution from direct solver and the solution from the PCG solver is 0.000783

**Test 3**

Mesh Parameterization Test.

Part I: Mesh generation

mesh information:

the number of vertices: 263169

the number of faces: 526303

Part II: Mesh decomposition

decomposition informations:

the number of decompositions: 128

the minimum size of all subdomains: 1846

the maximum size of all subdomains: 1956

the mean size of all subdomains: 1880

the size of the edge and wirebasket: 22474

mesh size / edge-wirebasket size: 11.709931

Part III: Pretreatment for the parameterization

Part IV: Parameterization using the local-global method

The local-global iteration time is: direct solver: 32, PCG solver: 17

The Schur iteration/running time per local-global step of all solvers are given as follows:

Direct Solver PCG

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Local-Global Iterations 32 17

Iterations/Local-Global Step 0 20

Running Time/Local Global Step 0.75308 3.2994

The RMS error between the solution from direct solver and the solution from the PCG solver is 0.001100

**Test 4**

Mesh Parameterization Test.

Part I: Mesh generation

mesh information:

the number of vertices: 66049

the number of faces: 132066

Part II: Mesh decomposition

decomposition informations:

the number of decompositions: 128

the minimum size of all subdomains: 406

the maximum size of all subdomains: 468

the mean size of all subdomains: 430

the size of the edge and wirebasket: 10982

mesh size / edge-wirebasket size: 6.014296

Part III: Pretreatment for the parameterization

Part IV: Parameterization using the local-global method

The local-global iteration time is: direct solver: 22, PCG solver: 16

The Schur iteration/running time per local-global step of all solvers are given as follows:

Direct Solver PCG

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Local-Global Iterations 22 16

Iterations/Local-Global Step 0 13

Running Time/Local Global Step 0.23086 0.65269

The RMS error between the solution from direct solver and the solution from the PCG solver is 0.000759

**Test 5**

Mesh Parameterization Test.

Part I: Mesh generation

mesh information:

the number of vertices: 66049

the number of faces: 132066

Part II: Mesh decomposition

decomposition informations:

the number of decompositions: 64

the minimum size of all subdomains: 894

the maximum size of all subdomains: 963

the mean size of all subdomains: 917

the size of the edge and wirebasket: 7302

mesh size / edge-wirebasket size: 9.045330

Part III: Pretreatment for the parameterization

Part IV: Parameterization using the local-global method

The local-global iteration time is: direct solver: 22, PCG solver: 24

The Schur iteration/running time per local-global step of all solvers are given as follows:

Direct Solver PCG

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Local-Global Iterations 22 24

Iterations/Local-Global Step 0 16

Running Time/Local Global Step 0.2322 0.74386

The RMS error between the solution from direct solver and the solution from the PCG solver is 0.000807

**Test 6**

Mesh Parameterization Test.

Part I: Mesh generation

mesh information:

the number of vertices: 16641

the number of faces: 33255

Part II: Mesh decomposition

decomposition informations:

the number of decompositions: 32

the minimum size of all subdomains: 418

the maximum size of all subdomains: 470

the mean size of all subdomains: 440

the size of the edge and wirebasket: 2535

mesh size / edge-wirebasket size: 6.564497

Part III: Pretreatment for the parameterization

Part IV: Parameterization using the local-global method

The local-global iteration time is: direct solver: 23, PCG solver: 22

The Schur iteration/running time per local-global step of all solvers are given as follows:

Direct Solver PCG

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Local-Global Iterations 23 22

Iterations/Local-Global Step 0 14

Running Time/Local Global Step 0.047806 0.18446

The RMS error between the solution from direct solver and the solution from the PCG solver is 0.002148

**Test 7**

Mesh Parameterization Test.

Part I: Mesh generation

mesh information:

the number of vertices: 16641

the number of faces: 33255

Part II: Mesh decomposition

decomposition informations:

the number of decompositions: 16

the minimum size of all subdomains: 905

the maximum size of all subdomains: 975

the mean size of all subdomains: 938

the size of the edge and wirebasket: 1619

mesh size / edge-wirebasket size: 10.278567

Part III: Pretreatment for the parameterization

Part IV: Parameterization using the local-global method

The local-global iteration time is: direct solver: 23, PCG solver: 23

The Schur iteration/running time per local-global step of all solvers are given as follows:

Direct Solver PCG

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Local-Global Iterations 23 23

Iterations/Local-Global Step 0 14

Running Time/Local Global Step 0.047917 0.16822

The RMS error between the solution from direct solver and the solution from the PCG solver is 0.006594

**Test 8**

Mesh Parameterization Test.

Part I: Mesh generation

mesh information:

the number of vertices: 4225

the number of faces: 8427

Part II: Mesh decomposition

decomposition informations:

the number of decompositions: 16

the minimum size of all subdomains: 195

the maximum size of all subdomains: 231

the mean size of all subdomains: 213

the size of the edge and wirebasket: 807

mesh size / edge-wirebasket size: 5.235440

Part III: Pretreatment for the parameterization

Part IV: Parameterization using the local-global method

The local-global iteration time is: direct solver: 19, PCG solver: 16

The Schur iteration/running time per local-global step of all solvers are given as follows:

Direct Solver PCG

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Local-Global Iterations 19 16

Iterations/Local-Global Step 0 12

Running Time/Local Global Step 0.0043348 0.044384

The RMS error between the solution from direct solver and the solution from the PCG solver is 0.001852

**Test 9**

Mesh Parameterization Test.

Part I: Mesh generation

mesh information:

the number of vertices: 1089

the number of faces: 2160

Part II: Mesh decomposition

decomposition informations:

the number of decompositions: 4

the minimum size of all subdomains: 231

the maximum size of all subdomains: 240

the mean size of all subdomains: 235

the size of the edge and wirebasket: 148

mesh size / edge-wirebasket size: 7.358108

Part III: Pretreatment for the parameterization

Part IV: Parameterization using the local-global method

The local-global iteration time is: direct solver: 15, PCG solver: 12

The Schur iteration/running time per local-global step of all solvers are given as follows:

Direct Solver PCG

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Local-Global Iterations 15 12

Iterations/Local-Global Step 0 11

Running Time/Local Global Step 0.002587 0.01381

The RMS error between the solution from direct solver and the solution from the PCG solver is 0.003409

**Test 10**

Mesh Parameterization Test.

Part I: Mesh generation

mesh information:

the number of vertices: 289

the number of faces: 562

Part II: Mesh decomposition

decomposition informations:

the number of decompositions: 4

the minimum size of all subdomains: 51

the maximum size of all subdomains: 54

the mean size of all subdomains: 52

the size of the edge and wirebasket: 80

mesh size / edge-wirebasket size: 3.612500

Part III: Pretreatment for the parameterization

Part IV: Parameterization using the local-global method

The local-global iteration time is: direct solver: 9, PCG solver: 9

The Schur iteration/running time per local-global step of all solvers are given as follows:

Direct Solver PCG

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Local-Global Iterations 9 9

Iterations/Local-Global Step 0 9

Running Time/Local Global Step 0.00089608 0.0041999

The RMS error between the solution from direct solver and the solution from the PCG solver is 0.003180