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#ifndef GRIDSPARSE_CONSTRUCTOR
#define GRIDSPARSE_CONSTRUCTOR

#include "pnl/pnl_vector.h"
#include "pnl/pnl_matrix.h"
#include "pde_tools.h"

typedef struct GridSparse{
    int dim; /*!< dimension of the grid */
    int lev; /*!< level of the grid */
    int size; /*!< size of the grid */
    PnlVectInt * size_in_level; /*!< size of the grid of level d */
    PnlHmatInt * Ind_Father; /*!< Give Index of father [Dimension] [Points] [LeftOrRight] */
    PnlHmatInt * Ind_Son; /*!< Give Index of Son [Dimension] [Points] [LeftOrRight] */
    PnlHmatInt * Ind_Neigh; /*!< Give Index of Neighbour [Dimension] [Points] [LeftOrRight] */
    /* PnlMatInt * Ind_Next; /*!< Give Index of Next [Dimension] [Points] */
    PnlMatInt * Points; /*!< Give Vector at [Points] as col of Points Points[i,dim] */
    /*!< Give index on diadic grid of i eme grid points in direction dim. */
    /*PnlHmat * Point_Step; /*!< Give Step for finite difference operator in [Dimension] [Points] [LeftOrRight] */
    PremiaPDEDimBoundary * Bnd;
} GridSparse;

extern GridSparse *grid_sparse_create01(int dim, int lev);
extern GridSparse *grid_sparse_create(const PnlVect * X0,
    const PnlVect * X1,int lev);
extern void GridSparse_free(GridSparse **G);
extern void GridSparse_check_relation(GridSparse *G);
#endif

```

References