Some applications of partial intersection and partial Gorenstein schemes

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It is well known that for 2-codimensional aCM subschemes of $\mathbb{P}^r$ with a fixed Hilbert function H there are all the possible graded Betti numbers between suitable bounds depending on H. For aCM subschemes of codimension $c \geq 3$ with Hilbert function H it is just known that there are upper bounds for the graded Betti numbers depending on H and these can be reached; but what are the graded Betti numbers which can be realized is not yet completely understood.

The aim of the seminar is to perform c-codimensional subschemes of $\mathbb{P}^r$ which could recover as many graded Betti numbers as possible generalizing both the 2-codimensional case and the maximal case.

This is done by constucting partial intersection schemes and partial Gorenstein schemes for which one can compute both the Hilbert function and the graded Betti numbers from their combinatorial structure.

Moreover, one can use such schemes for giving new examples of glicci and licci schemes.