Iterative Solution Methods for Inverse Problems

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This minicourse will treat iterative solution strategies for linear and nonlinear problems with a special emphasis on efficiency and regularizing properties. The planned schedule is as follows:

1. Regularization methods for linear problems

2. Landweber iteration

3. The Levenberg Marquardt method

4. The iteratively regularized Gauss Newton method

5. Extensions of Newton type methods

6. Kaczmarz and expectation maximization methods

References

[1] M. Burger, B. Kaltenbacher, and A. Neubauer, Iterative Solution Methods, book chapter, in preparation for: *Handbook of Mathematical Methods in Imaging*, O.Scherzer, ed.