1096-55-348   **Pawel Dlotko*** (`dlotko@sas.upenn.edu`), Department of Mathematics, University of
                     Pennsylvania, Philadelphia, PA. *Computational topology via Discrete Morse Theory.*

During the last decade we witness growing number of applications of computational topology in engineering and science. As a consequence many new concepts, as for instance persistence homology, along with new computational methods has been introduced. In this talk we will present a basics of Discrete Morse Theory (DMT) and introduce a concept of iterated Morse complex. Later we will show that most of the algorithms in computational topology can be obtained by using DMT. To be more precise – we will show, that both (co)homology over a field and persistent (co)homology can be computed using algorithms in DMT. At the end we will interpret standard matrix algorithm to compute persistence and so called reduction algorithms used in homology in the language of DMT. (Received August 29, 2013)