1049-57-77 **Yuanan Diao** and **Ernst Claus*** (claus.ernst@wku.edu), Department of Mathematics, Western Kentucky University, Bowling Green, KY 42101, and **Attila Por** and **Uta Ziegler**. *The Ropelengths of Knots Are Almost Linear in Terms of Their Crossing Numbers: Part 2.* Preliminary report.

For a knot or link $\mathcal{K}$, let $L(\mathcal{K})$ be the ropelength of $\mathcal{K}$ and $Cr(\mathcal{K})$ be the crossing number of $\mathcal{K}$. Here we show that there exists a constant $a > 0$ such that $L(\mathcal{K}) \leq aCr(\mathcal{K}) \ln^5(Cr(\mathcal{K}))$ for any $\mathcal{K}$, that is, the ropelength upper bound of any knot is almost linear in terms of its minimum crossing number and is a significant improvement over the best known upper bound established previously, where it was shown that $L(\mathcal{K}) \leq O((Cr(\mathcal{K})^{\frac{3}{2}}))$.

In this part, we outline the reconstruction process of a plane graph (namely our original minimum knot projection) from the pieces of sub plane graphs obtained by subdividing the original graph repeatedly. An analysis of the volume the reconstructed graph occupies will yield the desired ropelength bound. (Received February 20, 2009)