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Muche A Tilahun* (tmuche@mail.usf.edu), Mathematics Dept , Art and Science, University of South Florida, 4202, E. Fowler Avenue, Tampa, FL 33620-5700. *Chord graphs associated with DNA recombination in Ciliates*. Preliminary report.

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Graphs with 4 valent rigid vertices and two end points, called assembly graphs, represent DNA recombination that appear in certain species of ciliates. A recombination is modeled by smoothing of the 4-valent vertices which is guided by certain types of paths in the graph, called polygonal paths. We represent the simple assembly graph by a double occurrence word $w = a_1 a_2 \dots a_{2n}$ over the finite alphabet Σ with $|\Sigma| \geq n$ and we define a prime assembly word if it contains no sub-assembly word. A transversal path $\gamma = (a_1, e_1, a_2, e_2, \dots, e_n, a_n)$ of a simple assembly graph Γ_w corresponds to consecutive sequences of arcs $e_i = (a_i, a_{i+1})$ for a chord graph and a polygonal path of a assembly graph corresponds to arc-chord-arc sequences of the chord graph. We find assembly number for certain simple assembly graphs that correspond to prime assembly words using arc-chord-arc sequences of the chord graph. (Received September 22, 2010)