The following corrections have been made to the Lecture Notes. The changes are all included in the current version on my webpage.

**Lecture 9**

The definition of Hyperbolic transformations is inconsistent on Page 36. Change it to:

A non-identity M"obius transformation is said to be:

- **parabolic** if it is conjugate to $P$;
- **elliptic** if it is conjugate to $M_k$ for $|k| = 1$ ($k \neq 1$);
- **hyperbolic** if it is conjugate to $M_k$ for $k \in \mathbb{R}^+$ ($k \neq 0, +1$);
- **loxodromic** if it is conjugate to $M_k$ for $k \in \mathbb{C}$ with $|k| \neq 1$ and $k \notin \mathbb{R}^+$.

So a M"obius transformation $T : z \mapsto \frac{az+b}{cz+d}$, with $ad-bc = 1$, is

- the identity if $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ is conjugate to $\pm \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$.
- **parabolic** if $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ is conjugate to $\pm \begin{pmatrix} 1 & 1 \\ 0 & 1 \end{pmatrix}$.
- **elliptic** if $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ is conjugate to $\begin{pmatrix} \lambda & 0 \\ 0 & \lambda^{-1} \end{pmatrix}$ for some $\lambda$ with $|\lambda| = 1$.
- **hyperbolic** if $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ is conjugate to $\begin{pmatrix} \lambda & 0 \\ 0 & \lambda^{-1} \end{pmatrix}$ for some $\lambda$ with $\lambda \in \mathbb{R}$ and $\lambda \neq -1, 0, +1$.
- **loxodromic** if $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ is conjugate to $\begin{pmatrix} \lambda & 0 \\ 0 & \lambda^{-1} \end{pmatrix}$ for some $\lambda$ with $\lambda \notin \mathbb{R}$ and $|\lambda| \neq 1$.

**Lecture 23**

Change “large” to “small” in the comment after Lemma 23.4:

**Lemma 23.4**

Let $D$ be a hyperbolic plane at a hyperbolic distance $\rho$ from the origin in $B^3 = \mathbb{H}^3$. Then the Euclidean diameter of $D$ is at most $\frac{2}{\sinh \rho}$.

This is essentially the same result as Lemma 19.4. The inequality is only useful when $\rho$ is large. For small $\rho$ the observation that $\text{diam}(D) \leq 2$ is better.