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Spacelike CMC Surfaces in AdS $3$-space $\mathbb{H}^3_1(-1)$ and Spinor Representation. Preliminary report.

In 1998, R. Aiyama and K. Akutagawa gave a Kenmotsu-Bryant type representation formula for spacelike CMC surfaces in anti-de Sitter (abbreviated: AdS) 3-space $\mathbb{H}^3_1(-1)$. Their representation formula uses a non-holomorphic map, called the adjusted Gauß map, from a simply-connected Riemann surface into the Poincaré open disk. Since the adjusted Gauß map is locally defined, their representation formula enables us to construct spacelike CMC surfaces in $\mathbb{H}^3_1(-1)$ locally.

In this talk, we present a spinor representation formula for CMC spacelike surfaces in $\mathbb{H}^3_1(-1)$. The spinor representation formula has some advantages compare to Kenmotsu-Bryant type representation formula. It uses the (projected) generalised Gauß map which is defined globally, so the spinor representation is a global representation. The spinor representation is much easier to compute spacelike CMC surfaces ($2 \times 2$ matrix multiplication) than Kenmotsu-Bryant representation formula (system of ODEs). We also discuss differential geometric properties of spacelike CMC surfaces in $\mathbb{H}^3_1(-1)$ and the Gauß map. (Received September 01, 2004)