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Geometric operators in loop quantum gravity with a cosmological constant

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Loop quantum gravity is a candidate to describe the quantum gravity regime with zero cosmological constant. One of its key results is that geometric operators, such as area, angle, volume, are quantized. Not much is known when the cosmological constant is not zero. It is usually believed that to introduce this parameter in the game, we need to use quantum groups. However due to the complicated algebraic structure inherent to quantum groups not much is known in this case. Apart from the area operator, the geometric operators are not yet defined. I will discuss how the use of tensor operators can circumvent the difficulties and allow to construct a natural set of observables. In particular, I will construct the natural geometric observables such as angle or volume and discuss some of their properties.