Interferometric Measurement of the Source Velocity

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Abstract

The method of measuring the source velocity by employing the so-called YKP parametrisation of the Bose–Einstein correlation function is critically reviewed. It is found that the velocity parameter of this parametrisation (the YK velocity) depends on the boson pair momentum in a crucial way. This dependence can lead to a non-zero YK velocity even for a non-expanding source at rest. This observation renders the measurement of the source velocity employing this method doubtful. We propose a possible approach to the source rest frame determination by looking for extrema of the Pratt–Bertsch correlation radii.