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Lifetime Measurements with Mark II's First Vertex Detector

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The lifetimes of the (then) newly discovered tau lepton and b hadrons were unmeasured when detectors began studying 30 GeV e+e- collisions at the PEP and PETRA storage rings. The addition of a high precision drift chamber, the Mark II Secondary Vertex Detector, led the Mark II collaboration to make its first significant measurements of the tau and charmed particle lifetimes. The b hadron lifetime was popularly presumed to be very short, and out of reach. But with a healthy dose of luminosity during 1982-1983, both the MAC and Mark II experiments at PEP saw unmistakable signs that the b lifetime was in fact long, measured it, and showed that the responsible CKM element, Vbc, was small. I'll review this history, talk about the rather far reaching implications of a long b lifetime, and chart the rapid progress in the art of vertex detection.