The Missouri River Valley chapter of the American Association of Physicists in Medicine is a regional chapter that represents Nebraska, Iowa, Kansas, and Missouri. The chapter hosts two meetings per year, a spring and fall meeting. The meetings feature talks by clinicians and researchers on many topics of interest to medical physicists.

In the spring of 1971, 6 to 8 medical physicists met in a small room in the radiation oncology department of the University of Kansas Medical Center in Kansas City. There were two from Washington University in St Louis, at least one from the University of Nebraska Medical Center in Omaha, and a few from the Kansas City area. The purpose of the meeting was to organize a chapter of the AAPM.

Those present recognized the need to promote recognition of medical physics locally within the academic and scientific communities, and to support those practicing clinical physics, primarily in the rural areas of the region. However, the immediate goal was to obtain formal recognition by the AAPM as a regional chapter and to offer to host the 1974 annual AAPM meeting in Kansas City.

A committee was selected to formulate a constitution and bylaws and to apply to the national organization for recognition as a bona fide chapter. At that initial gathering it was decided that Ernest (Curly) Jones of Omaha would be the Chapter's first president and Arnold Feldman of Washington University would be the Chapter's representative to the Board of Directors.

Late in 1971 the Missouri River Valley Chapter, to cover the primarily rural area of Missouri, Iowa, Kansas, and Nebraska, was recognized by the AAPM as a regional Chapter. In 1974 the Chapter hosted the annual meeting in Kansas City.