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Type of granite complex intrusion in East Pilbara terrane based on foliation pattern diagram around intrusion body

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Theoretical analysis of stressed two-dimensional elastic material with a circular hole filled with a viscous material revealed that three types (TT, TX and XX types) of distribution pattern of maximum principal stress orientation around the hole can be produced as a function of far-field stress S1 ,S2 and internal pressure of viscous material p. The TT type is characterized by tangential orientation of S2 axis in all directions around the hole, while the TX is characterized by S2 axis of tangential and normal orientations to the circular hole in orthogonal orientations. The XX type is characterized by normal orientation of foliation all around the hole. Assuming that S2 axis is parallel to the foliation, we consider the stress state for actual foliation patterns in aureoles of granitic intrusions. We can find some natural examples of TT and TX type patterns, whereas we have never found the XX type patterns in nature. In this poster we present TT a type foliation pattern around the Mount Edgar Batholith in Pilbara area, Western Australia, and discuss how the TT type pattern foliation can be produced as a function of internal pressure of granitic body.

Keywords: Pilbara, batholith, Archean, intrusion event