

The diagram illustrates a cycle between two types of machine learning problems. On the left, a box lists input parameters: Indenter (Velocity, Radius, Angle, Hitting location). A thick blue arrow labeled 'Forward problem' points from this box to a box on the right labeled 'Data set of crack pattern'. In the center is a box labeled 'ML'. A second thick blue arrow labeled 'Inverse problem' points from the 'Data set of crack pattern' box back to the input box, completing the cycle.

**Forward problem**

**Indenter  
(Velocity,  
Radius, Angle,  
Hitting location)**

**ML**

**Data set of  
crack pattern**

**Inverse problem**