



Figure 1: Action Potential Duration Restitution Curve

Suppose that a cardiac cell is stimulated periodically with a basic cycle length  $BCL$ . The time period between stimuli consists of two segments, the action potential Action Potential Duration (APD) and the Diastolic Interval (DI). Thus,

$$APD + DI = BCL. \quad (1)$$

It is observed that the action potential duration depends on the previous diastolic interval,  $APD_n = A(DI_{n-1})$ . This relationship is called the APD restitution curve, and is depicted in Fig. 1. It follows that on the  $n^{th}$  cycle,

$$DI_n = BCL - A(DI_{n-1}), \quad (2)$$

This map is the topic of the first homework exercise.