ADORE Update Version 5.21
Release Date: February 10, 2005

ADORE 5.21 provides the following temporary fixes to ADORE 5.20:

1. While incorporating the visco-elastic model in version 5.20 the traction coefficients for the hypothetical traction model were not set correctly. This is corrected in version 5.21.

2. While the ADORE input facility specifies race crown (a variable which is presently not used), ADORE variable list in the read statement does not include this variable in version 5.20. This compatibility issue is corrected in version 5.21.

In addition to the above corrections the numerical procedures in ADORE are presently under a rigorous review. The review is prompted by increasing use of ADORE for program simulation over thousand of time steps. When doing computations over large number of time steps, a careful control over the local truncation error is essential, although the explicit integration procedures used are inherently stable. This is particularly true when the bearing is on a verge of instability. In version 5.21 the truncation check procedures are modified to maintain increased accuracy over large number of time steps. In order for this enhancement to work efficiently it is suggested that the truncation limit on Record 2.1 be set to 1.0E-06, rather than the earlier default of 1.0E-04.

Rolling element to race traction has been known to be one of the key parameters which control cage stability, skidding and overall bearing performance. While the print output gives maximum slip velocity and pertinent traction coefficient, it has been difficult to envision a traction curve which may be applicable at the pertinent operating conditions. In version 5.21 the operating traction curve for the heaviest loaded rolling element is printed. This data may be viewed along with the max slip and slip distribution output to determine the extent of operation on the negative slope of the traction curve. This provides significant guidance with regard to the onset of instability.