

```
../cosin_licensing/Images/cosin_header_short.eps
```

## *FTire* Support Checklist

Before requesting FTire technical support, please check the following troubleshooting guide.

- ✓ Read all relevant **FTire documentation** chapters on [www.cosin.eu](http://www.cosin.eu) carefully.
- ✓ Run the troublesome simulation with the **most recent FTire version**, available for download at [www.cosin.eu](http://www.cosin.eu). Make sure that this FTire version was actually used. You can see the version string in FTire's first message line, e.g.

```
FTire: Version 2010-3 r3061, 2010/08/29
```

If you are running FTire within an MBS package and do not see this message line, FTire was not yet called at all. This is most likely a case for the MBS package vendor's support.

- ✓ Check whether **de-activation of recent changes and enhancements** of FTire might have caused the issue (use FTire/editor → version & numerics → only use features introduced prior to ...). Report from what date on the issue occurs.
- ✓ Switch on and read FTire's **extended message output** ('verbosity mode', use FTire/editor → output), to recognize any additional warning or error message.
- ✓ Switch on and watch FTire's **animation**, available with the above mentioned enhanced FTire version (use FTire/editor → animation), to check your simulation run visually.
- ✓ Make sure that the **integrator's step size** is not much larger than **2 ms** (in the calling MBS solver settings, restrict it either with HMAX or by specifying at least 500 output steps per second simulation).
- ✓ Verify that the **wheels' moments of inertia** are reasonably large. For a passenger car, it will be in the order of magnitude of 0.1 kgm<sup>2</sup> or more.
- ✓ Try to cure a numerical instability by **strongly decreasing the step-size**. If FTire does not run with a calling step-size of 1 ms (at least), and an internal step-size of 0.1 ms (at least), a modelization level error is very likely.

- ✓ Verify that the correct **fixed mass properties** are added to the rim part. These values are put out by *FTire*, in a message similar to:

```
FTire: add the following mass properties to the rim in your MBS model
FTire: ('rim fixed' tire parts which are not accounted for in FTire):
FTire: m =          4.695 kg
FTire: Ixx = Izz = 0.156 kgm^2
FTire: Iyy =          0.228 kgm^2 (y axis = wheel rotation axis)
FTire:  or
FTire: subtract the following mass properties from the wheel (=rim+tire)
FTire: in your MBS model ('free' tire parts, accounted for in FTire):
FTire: m =          6.005 kg
FTire: Ixx = Izz = 0.257 kgm^2
FTire: Iyy =          0.513 kgm^2 (y axis = wheel rotation axis)
```

- ✓ Inspect the **road surface geometry** with *cosin/roadtools'* **road virsualization** to exclude problems with the road data or road computation, like length unit scaling, misoriented reference frames, etc.

If the problem persists, provide **all** files necessary to re-run your simulation outside your own environment. Don't forget the **tire/road/driver/drive-train** data files, if used.

If you have confidential model data, either try to reproduce the issue with uncritical data, or generate and send a record file. To this end, open the tir-file in *FTire/editor*, then check 'yes' in **output** → **simulation recording**, and save the data file. **Together with both your tire and road data file**, the record file **ftire.rec** will allow to re-run the simulation without having available your vehicle data. The record file **ftire.rec** will be generated in your working directory.

**Observing these points will speed-up and simplify the problem solution. Thank you!**