

Abstract Submitted
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Wire Bond Encapsulation for the CMS Forward Pixel Upgrade

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CMS COLLABORATION — The Phase 1 upgrade of the pixel tracker for the CMS
experiment will require the assembly of approximately 1000 modules consisting of
pixel sensors bump bonded to readout chips. Electrical connections between the
custom readout chips and support ASIC's that constitute the front-end of the pixel
data acquisition system are made via wire bonds to a thin printed circuit board.
Part of the assembly process carried out at Purdue University includes the partial
encapsulation of the wire bonds for mechanical protection, prevention of electrolytic
corrosion, and to damp oscillations due to Lorentz forces from transient current
pulses in large magnetic fields. We present the details of the robotic assembly
process which allows the deposition of the viscous encapsulant compound with 100
micron precision.

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