# LA Drain

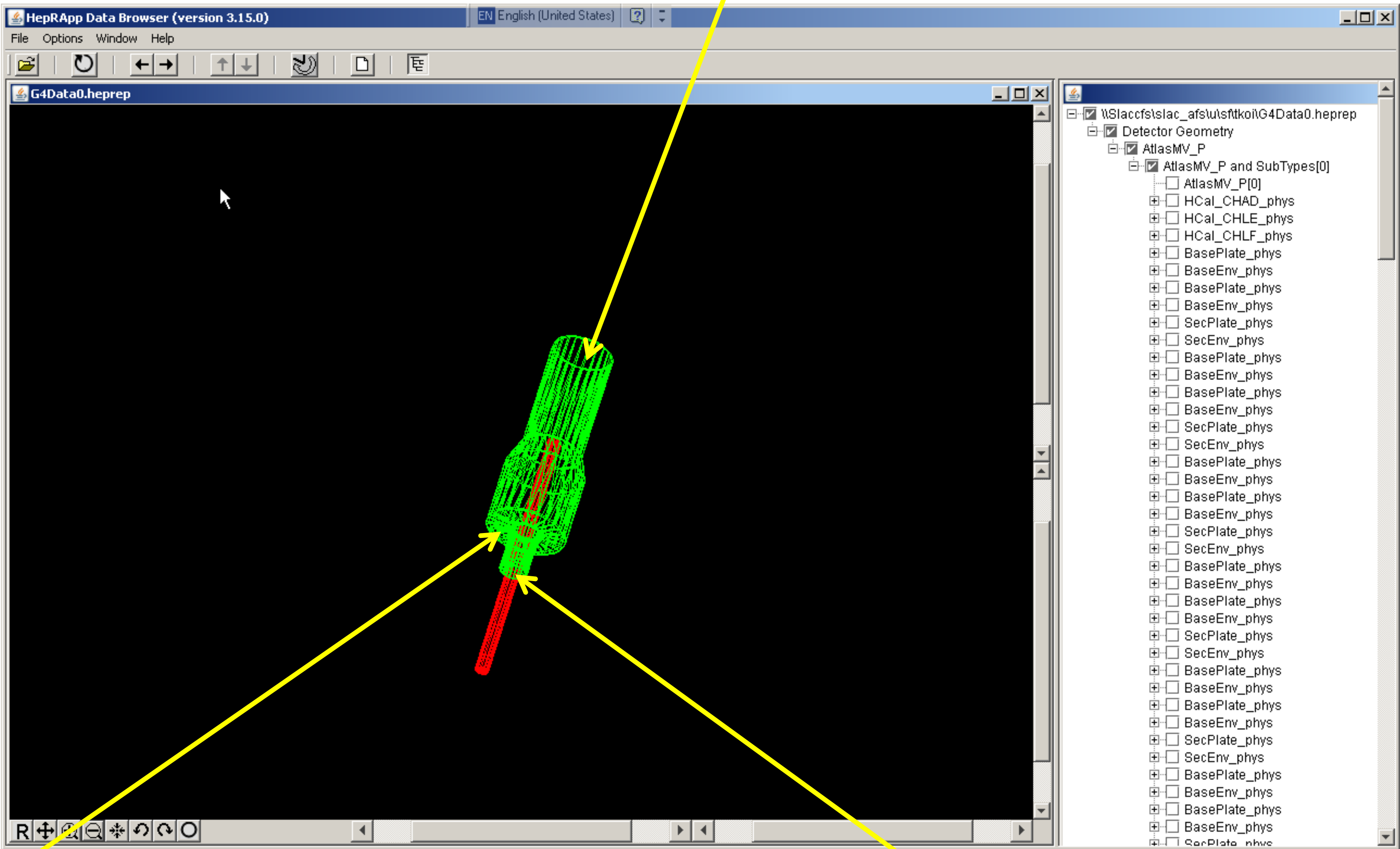
KOI, Tatsumi
SLAC

# We do not need 2mm Gap

```
xterm                    English (United States)

G4double d = 2*mm;

// Insulation Washer
//------------------------------------------------------------------material Polycarbonate

//r_inner = 132*mm;
r_inner = 132*mm-d;
r_outer = 148.88*mm;
z_half = 20*mm;
G4Tubs* InsulationWasher = new G4Tubs("InsulationWasher",r_inner, r_outer, z_half, phi0, dphi);

G4LogicalVolume* InsulationWasher_log = new G4LogicalVolume(InsulationWasher,
                                                            POLYCARBONATE,
                                                            "IW_log1", 0, 0, 0);
InsulationWasher_log->SetVisAttributes(PolyVisAtt);

new G4PVPlacement(0, G4ThreeVector(0,0,120*mm), InsulationWasher_log, "IW_phys1",
                  SpaceLDL_log, true, 0);


// LiquidArgon Volume
r_inner = 0.;
r_outer = 28.36*mm;
z_half = 565*mm;
G4Tubs* Liquidargon = new G4Tubs("Liquidargon",r_inner, r_outer, z_half, phi0, dphi);

G4LogicalVolume* Liquidargon_log = new G4LogicalVolume(Liquidargon,
                                                       GCalorMaterials::GetMat("LIQ_ARGON"),
                                                       "LA_log1", 0, 0, 0);

Liquidargon_log->SetVisAttributes(LiqAVisAtt);
new G4PVPlacement(0,G4ThreeVector(0, 0, -519*mm), Liquidargon_log, "LA_phys1",
                  SpaceLDL_log, false, 0);


// Vacuum Volume
r_inner = 0*mm;
//r_outer = 117*mm;
r_outer = 117*mm+d;
z_half = 243.75*mm;
G4Tubs* Vacuum1 = new G4Tubs("Vacuum1", r_inner, r_outer, z_half, phi0, dphi);
r_inner = 0*mm;
//r_outer = 156*mm;
r_outer = 156*mm+d;
r_inner2 = 0*mm;
//r_outer2 = 117*mm;
r_outer2 = 117*mm+d;
z_half = 50*mm;
G4Cons* Vacuum2=new G4Cons("Vacuum2", r_inner, r_outer, r_inner2, r_outer2, z_half, phi0, dphi);
r_inner = 0*mm;
//r_outer = 156*mm;
r_outer = 156*mm+d;
z_half = 140*mm;
G4Tubs* Vacuum3 = new G4Tubs("Vacuum3", r_inner, r_outer, z_half, phi0, dphi);
r_inner = 0*mm;
r_outer = 50*mm+d;
z_half = 105*mm;
G4Tubs* Vacuum4 = new G4Tubs("Vacuum4", r_inner, r_outer, z_half, phi0, dphi);
r_inner = 0*mm;
//r_outer = 30*mm;
r_outer = 28.36*mm;
z_half = 330*mm;
G4Tubs* Vacuum5 = new G4Tubs("Vacuum5", r_inner, r_outer, z_half, phi0, dphi);

G4VSolid* Vacuum_Union1= new G4UnionSolid("Vacuum_Union1", Vacuum1, Vacuum2,
                                          0, G4ThreeVector(0, 0, -293.75*mm));
G4VSolid* Vacuum_Union2= new G4UnionSolid("Vacuum_Union2", Vacuum_Union1, Vacuum3,
                                          0, G4ThreeVector(0, 0, -483.75*mm));
G4VSolid* Vacuum_Union3= new G4UnionSolid("Vacuum_Union3", Vacuum_Union2, Vacuum4,
                                          0, G4ThreeVector(0, 0, -728.75*mm));
G4VSolid* Vacuum_Subtraction1= new G4SubtractionSolid("Vacuum_Subtraction1", Vacuum_Union3, Vacuum5,
                                                      0, G4ThreeVector(0, 0, -526.5*mm));

G4LogicalVolume* Vacuum_log = new G4LogicalVolume(Vacuum_Subtraction1,
                                                                        215,3          86%
```

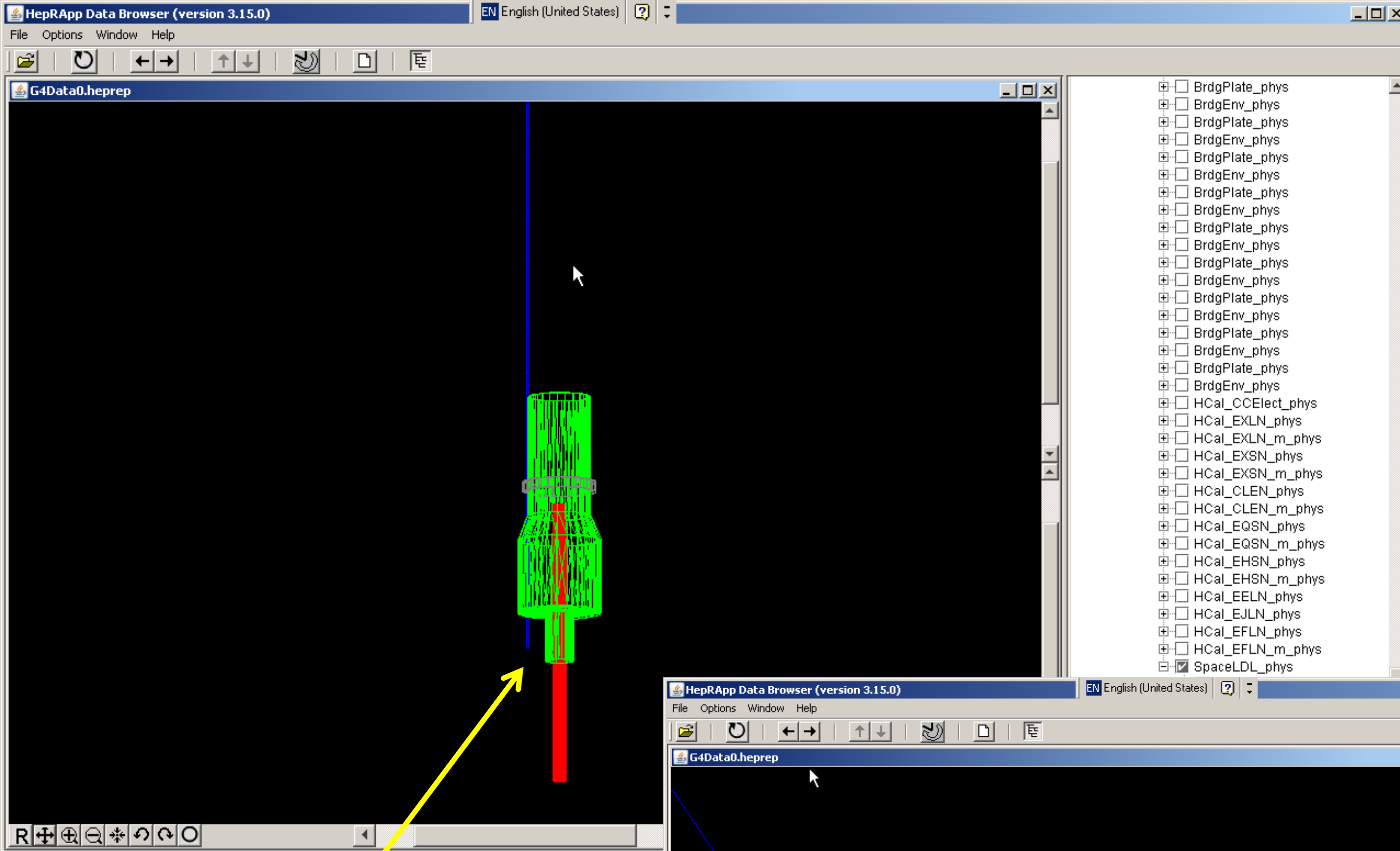
Even after these modifications, GeomTest (4k) does not detect overlap within Drain Line.

Stainless steel plate does NOT exist

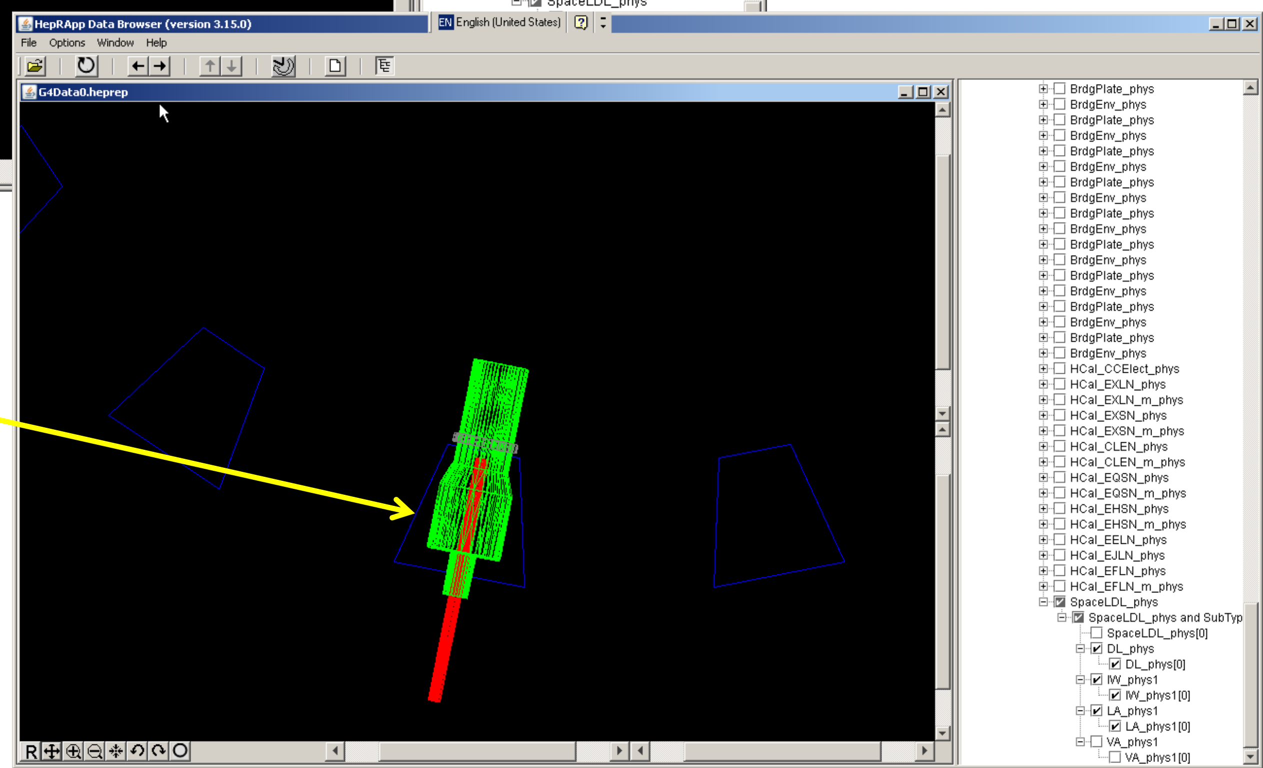



Stainless steel plate exists

Stainless steel plate does NOT exist

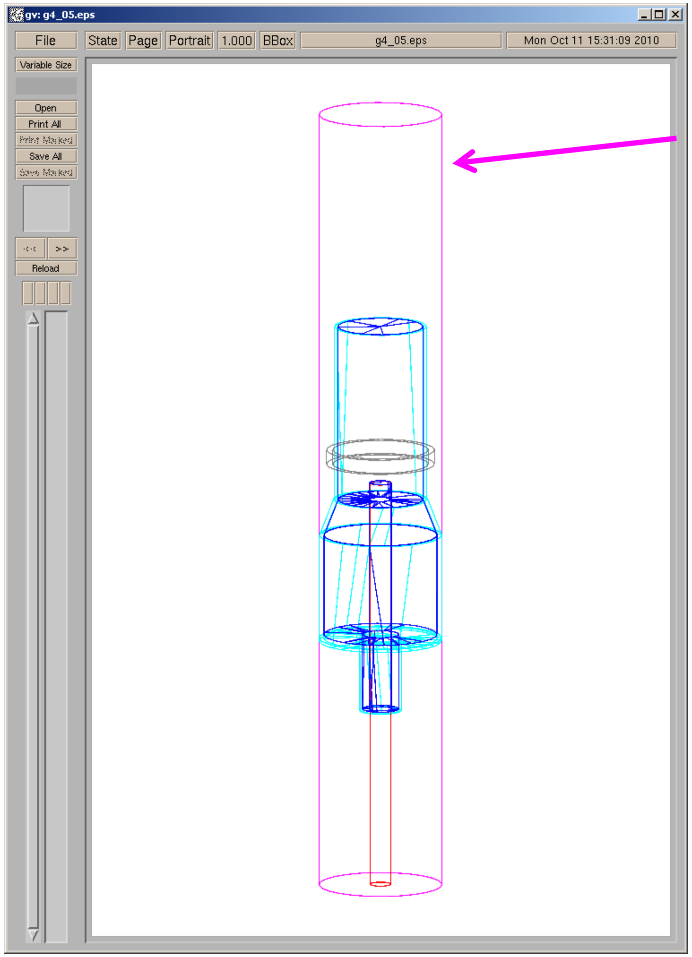



LA Drain Line V.5




SimpleTileCal::BasePlate

Need to move
Drain Line about 40mm +Z




SpaceLDL_phys

We may need to use Assembly Volume instead of “SpaceLDL_phys”.