**InGaAs Selective Etch Rate**

**Checklist**

# Prepare

**☐** Take photoresist out of fridge to warm up to room temperature for at least 15 minutes

**☐** Login to iLabs to begin sessions

**☐** Warm up contact aligner for at least 15 minutes

**☐** ’Power’ switch to on position

**☐** Hold down ‘Start’ switch until gauge on left decreases, squeak noise occurs

# dissolve succinic acid

**☐** Prepare 225 mL DI water into 1000 mL beaker with stir bar

**☐** Gradually add in 45 g succinic acid

**☐** Bring solution to 50º C by setting hotplate temperature to about 85º C

**☐** Use magnetic stir bar to ensure dissolution of succinic acid

**☐** Keep solution on hotplate to prevent precipitation

# Coat sample with Photoresist

**☐** Warm up hotplate to 115º C

**☐** Center sample on spin coater

**☐** Set up recipe ECE540L0SPR-220-3.0

**☐** Put droplet of photoresist on sample, and start recipe

**☐** Place onto whole warped wafer to put on hotplate

**☐** Bake for 90 seconds on hotplate

# contact aligner

**☐** Open vacuum valve (blue) and air valve (yellow)

**☐** Power on and press enter

**☐** Selection 3: (1) and (2), enter

**☐** Selection 2: (1), enter

**☐** Selection 1: 14 seconds, enter

**☐** Intensity: 15

**☐** Place glass slide and turn on mask vacuum

**☐** Place sample and piece of a broken wafer over half of sample as to only expose half of the sample

**☐** Press load, contact, and then expose

**☐** Let rest for 10 minutes

**☐** Hard bake at 200º for 60 seconds

# Develop photoresist

**☐** Submerge in Mega-posit MF 26A developer (in base cabinet) for about 45 - 180 seconds or until photoresist dissolves off one side

**☐** Rinse with DI water and dry with nitrogen gas

# complete preparing etch solution

**☐** The current recipe is 225 mL DI water, 45 g succinic acid, and 15 mL H2O2. Add NH4OH2 to bring the pH to 5.5. (The DI water and succinic acid is already prepared at this step)

**☐** Complete etches in one-minute intervals, measuring the profile step in three places for each iteration

**☐** Cleanup/ record data/ sign out of iLabs/ turn off nitrogen to the benches