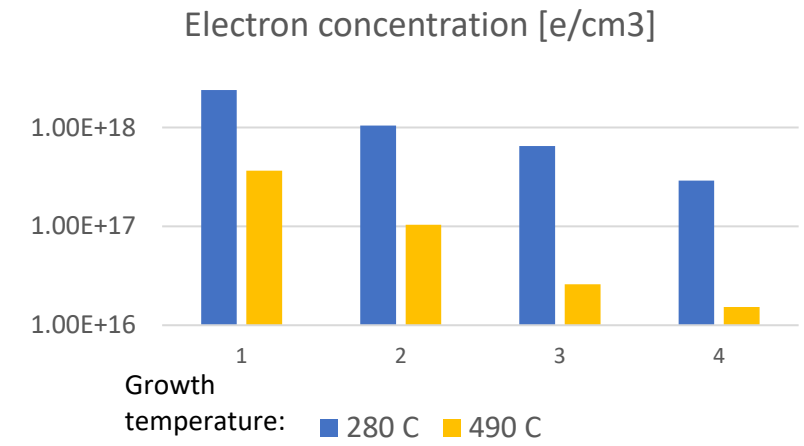

Figure 1. Impact of Er incorporation and growth temperature on InGaAs materials.

1. Co-deposition. ErAs ~1.7%

Interrupt growth:

2. 20 nm period InGaAs, As shutter always open. ErAs~0.3%

3. 22 nm period InGaAs, As closed during Er deposition + 30 s all shutters close. ErAs~1.3%

4. 30 nm period InGaAs, As closed during Er deposition + 30 s all shutters close. ErAs~1%

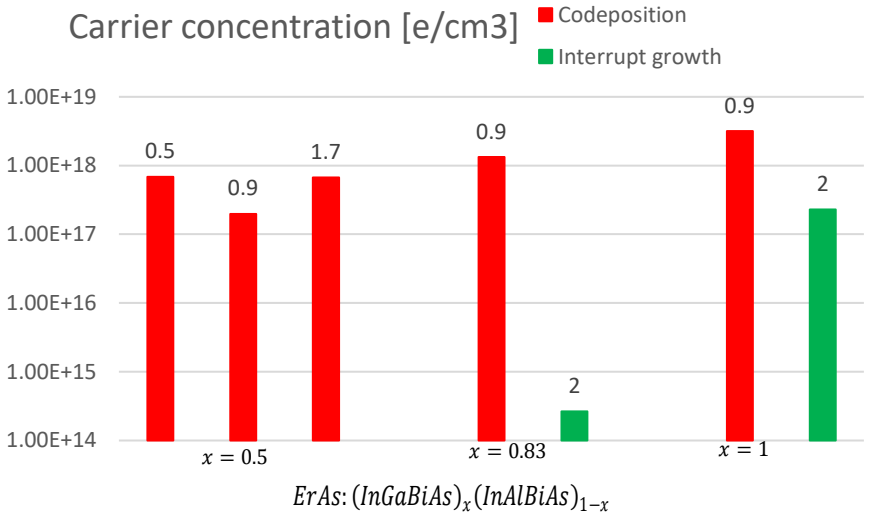

Figure 2. Carrier concentration in ErAs:InGaAlBiAs digital alloys. For interrupt growth, the matrix period is 30 nm and Er shutter was open for 45 s without As, plus 30 s with all shutters close. (Data labels on top correspond to the approximated %ErAs composition)

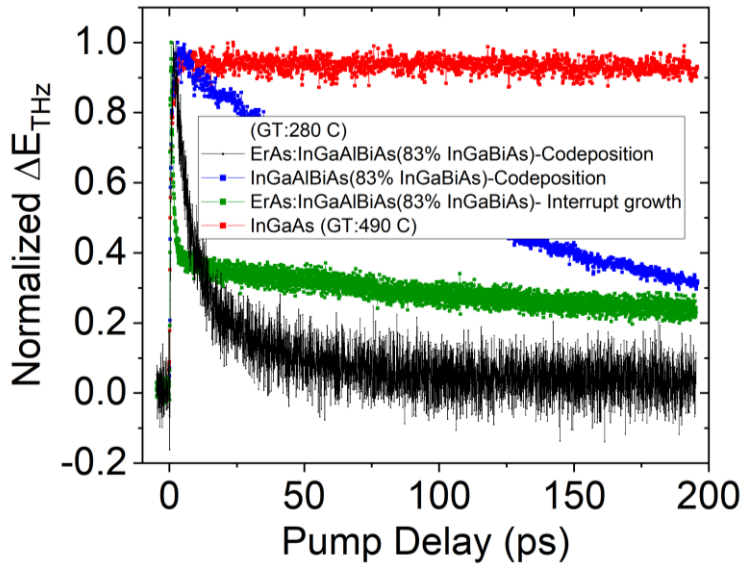

Figure 3. Optical pump (800 nm) THz probe on ErAs:InGaAlBiAs materials, showing a fast decay component of a few ps in samples with Er. We have also achieved sub-picosecond dynamics.