











		Toras LIZ PACKARD
What is SAIL? 3 sequential processes on the flexible web		
Deposition	Imprinting	Self-aligned etching
Vacuum deposition of metals, dielectrics, and semiconductors	Multiple mask levels imprinted as single 3-D structure	Patterning with wet and dry processes based on the imprint mask
Fully R2R		
	THE	



Imprint Lithography: The Best Choice for R2R Patterning

imprint lithography

high: > 5 meters/min

00nm demonstrated

PECVD Si, Si₃N₄, SiO₂,

acuum deposited netal, many others

Self-alignment of

ivers

multiple patterning

photolithography

moderate: limited by

PECVD Si, Si₃N₄, SiO₂, vacuum deposited metal, many others

Difficult or Impossible

dimensional instability

due to web's

step & repeat / stitching limited by substrate flatness ~10µ

Throughput

Resolution

Materials

Alignment of multiple levels inkjet

low

>10µ

sensor

must be jettable

Requires secondary



































Summary R2R processing is a key enabler for high throughput & low cost production of large area AM flexible displays Self-Aligned Imprint Lithography (SAIL) is an end-to-end R2R process, and enables high precision interlayer alignment and resolution Manufacturability of SAIL TFTs and AM backplanes has been demonstrated on the plastic substrate

plastic substrate

•

TFT stack deposition, imprinting steps, and etching steps are achieved with the R2R environment

inven Thank you for your Attention!