

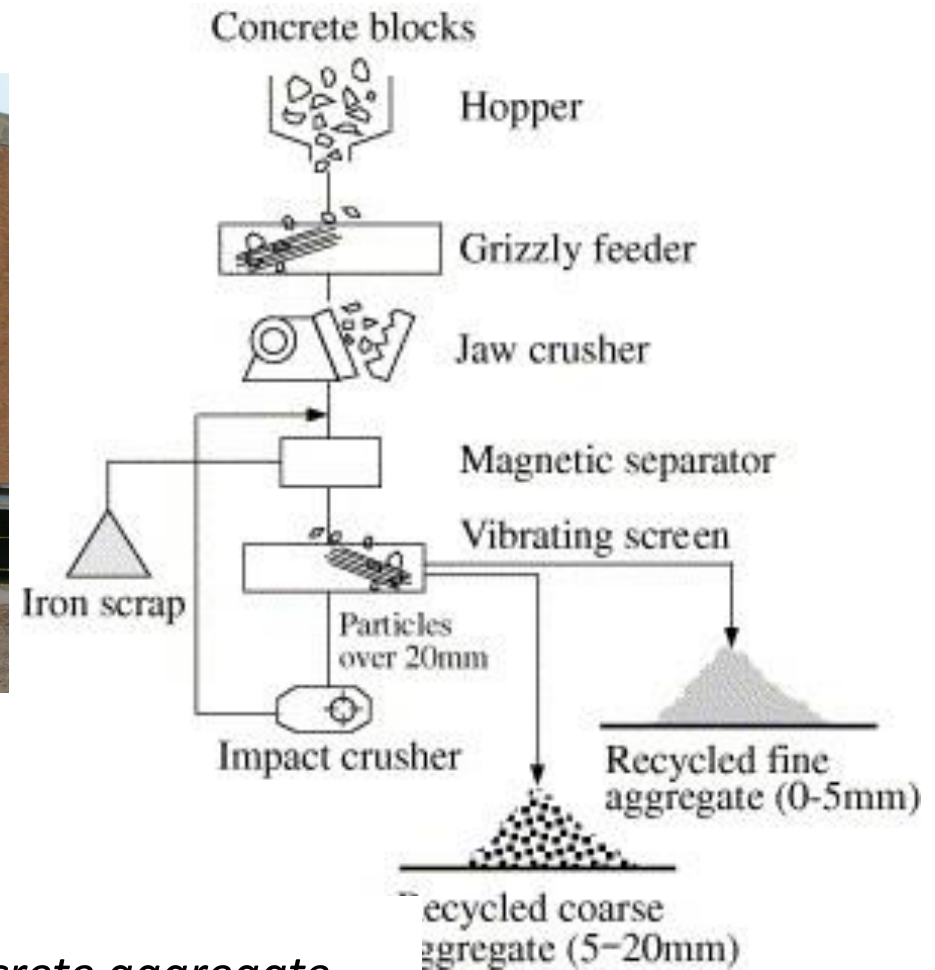
Reuse of Recycled Concrete Fines for the Production of High Performance Fiber- reinforced Concrete

BEARS / SinBerBEST

Presented by LI Junxia

Supervisor: Asst Prof. YANG En-Hua

10 January, 2012



Production of Recycled Concrete aggregate

1 Motivation

2 Research Methods and Results

3 Future work



- *Landfill capacity*
- *Land shortage*

1 Motivation

2 Research Methods and Results

3 Future work

Behaviors of High Performance Fiber-reinforced Concrete

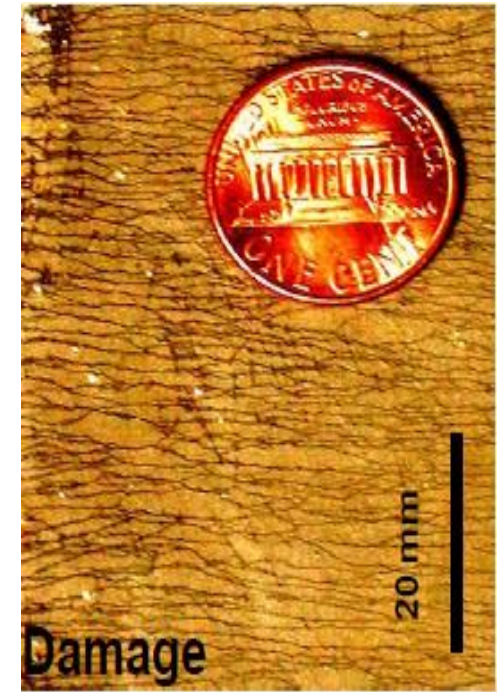
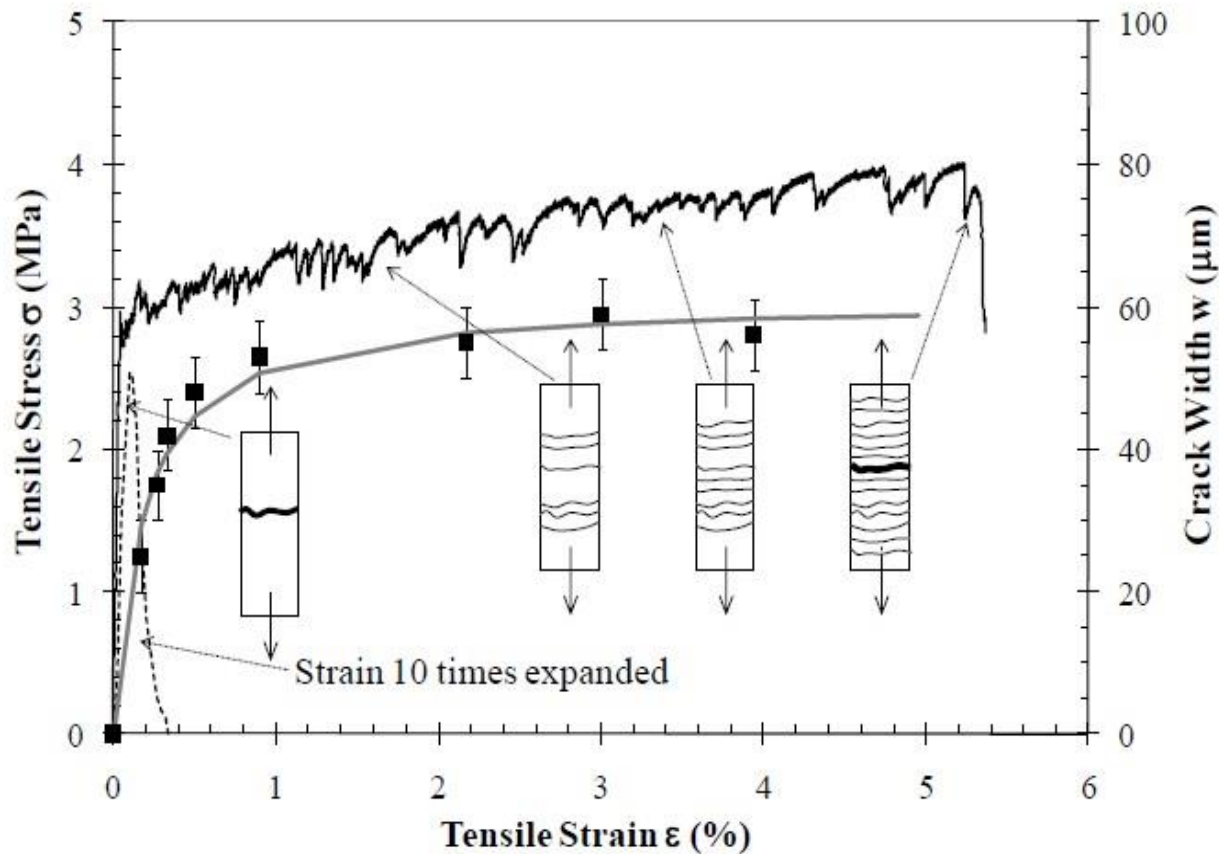


Figure 1. Strain hardening behavior and distributed micro-cracking of HPFRC

1 Motivation

2 Research Methods and Results

3 Future work



Objective: To develop RCF-HPFRC

1 Motivation

2 Research Methods and Results

3 Future work

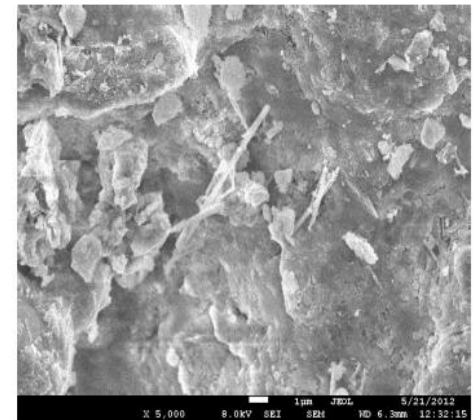
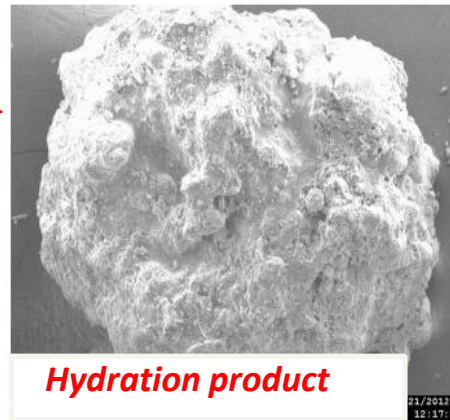
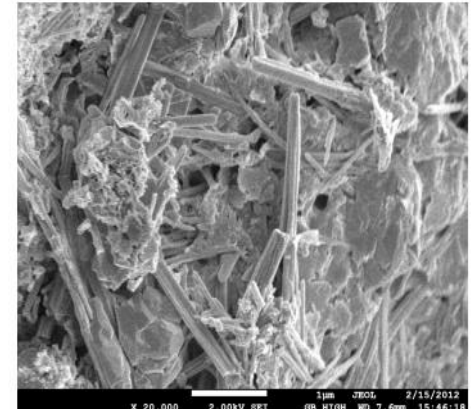
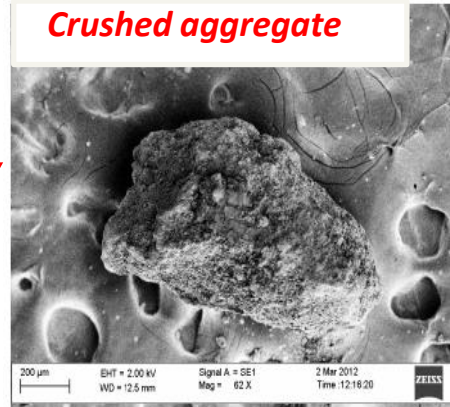
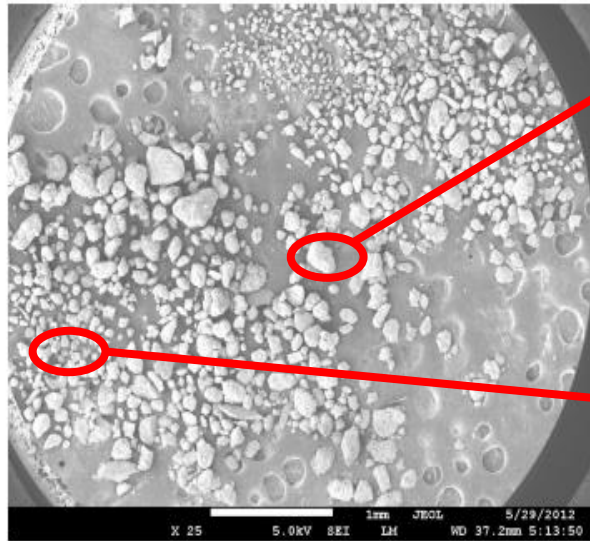
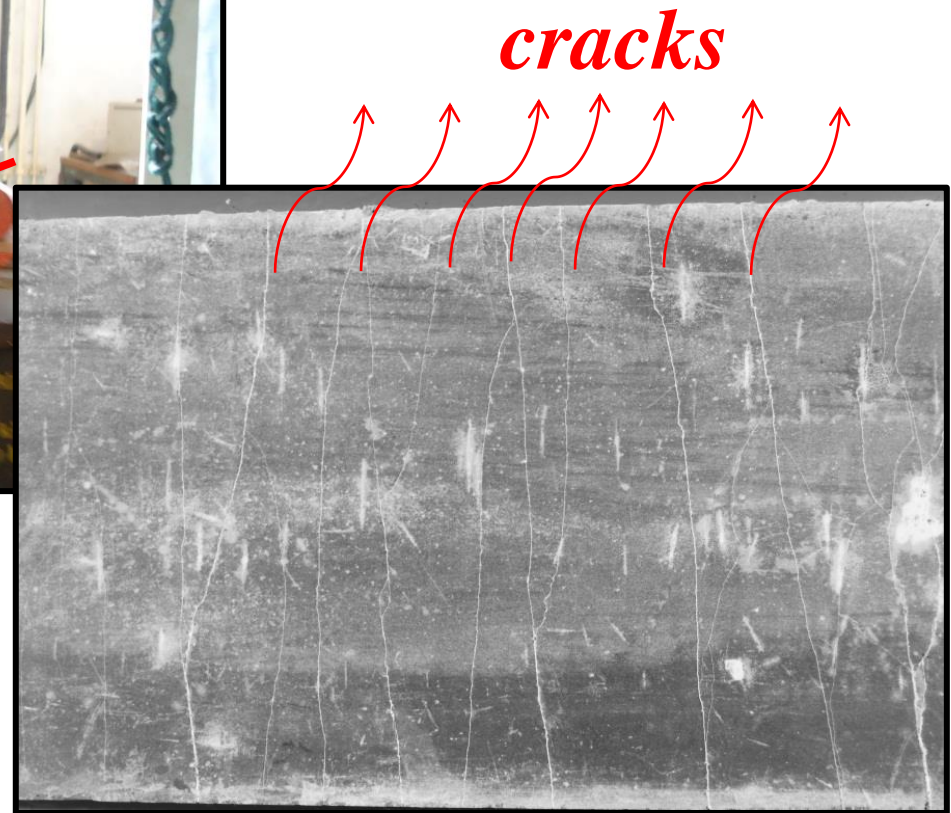
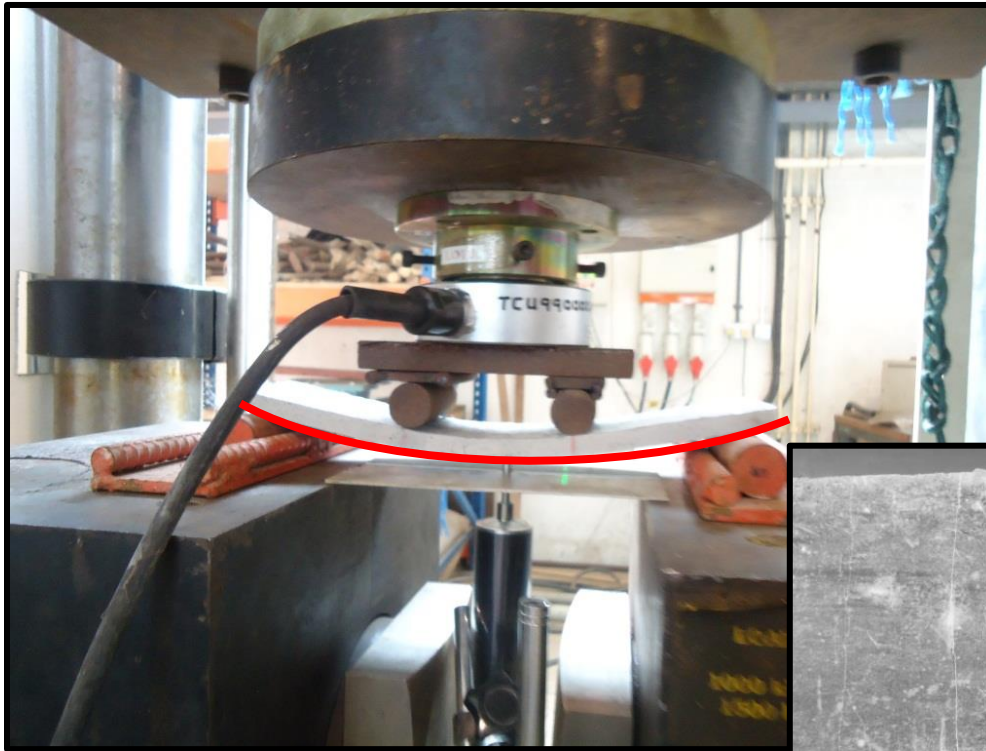


Figure 2. SEM micrograph of Recycled Concrete Fines

1 Motivation

2 Research Methods and Results

3 Future work



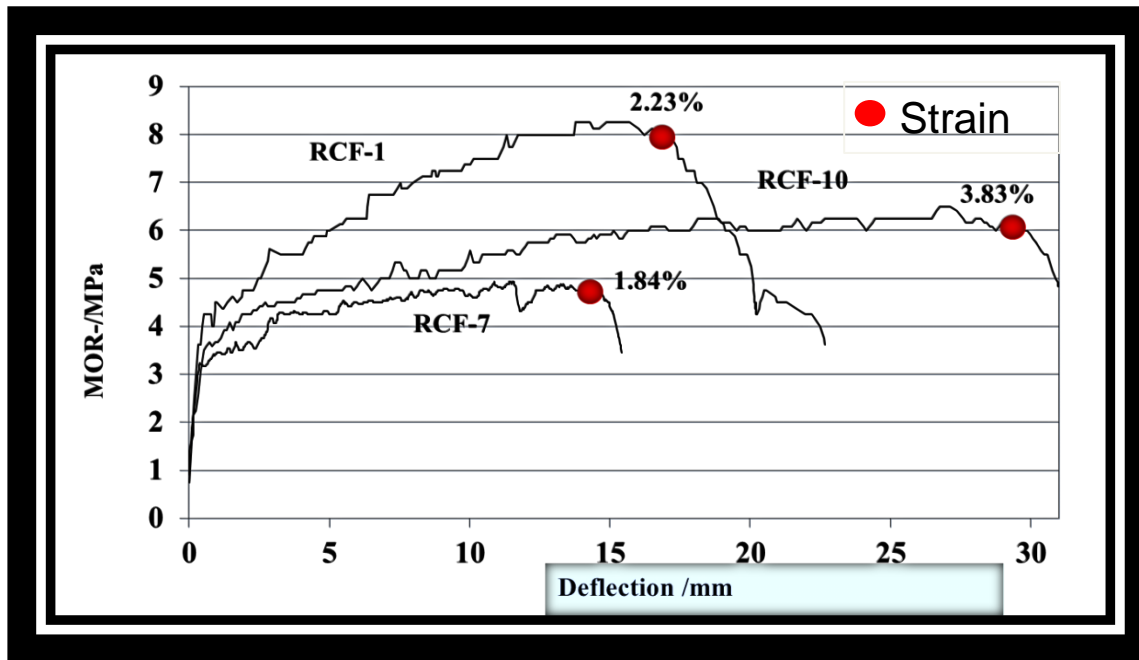
1 Motivation

2 Research Methods and Results

3 Future work

Table 1. Mix proportion and mechanical properties

RCF size	Mix	Cement	Water	RCF	σ_c /MPa	MOR /MPa	Strain capacity (%)
0~600 μm	RCF-1	0	0.35	0	52.8	8.3	2.23
	RCF-7	0.8	0.35	0.8	24.6	4.8	1.84
0~300 μm	RCF-10	0.8	0.35	0.8	28	6.3	3.83

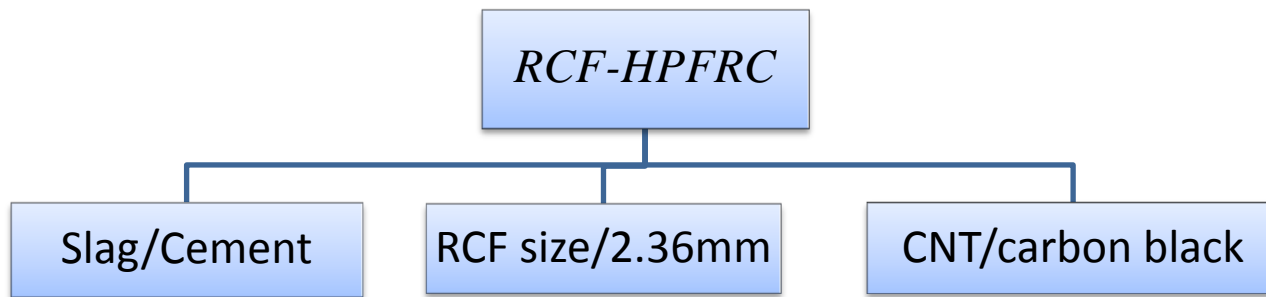


- *Good strain capacity*
- *High ductility*

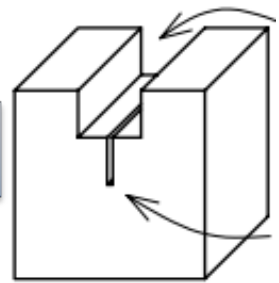
1 Motivation

2 Research Methods and Results

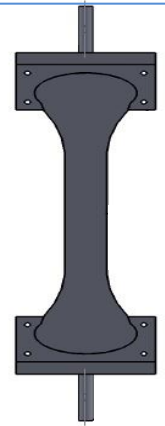
3 Future work



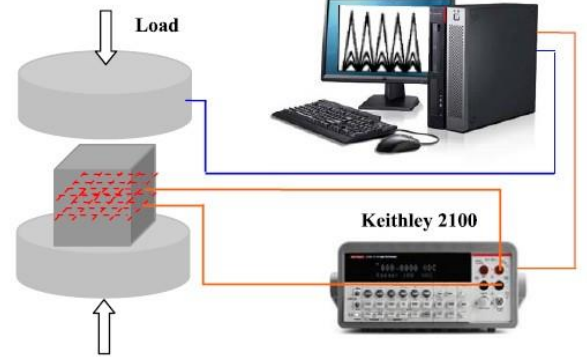
1. Matrix toughness test



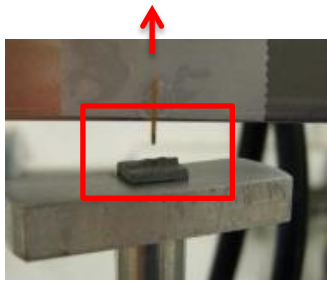
3. Direct tension test



5. Electrical test



2. Single Fiber pullout test



4. Compressive test

1 Motivation

2 Research Methods and Results

3 Future work

Thank you for your attention !