Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Supporting Information:

Coal based activated carbon nanofibers prepared by electrospinning

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Fig S1 Optic photograph of ash of acid treated coal and raw coal

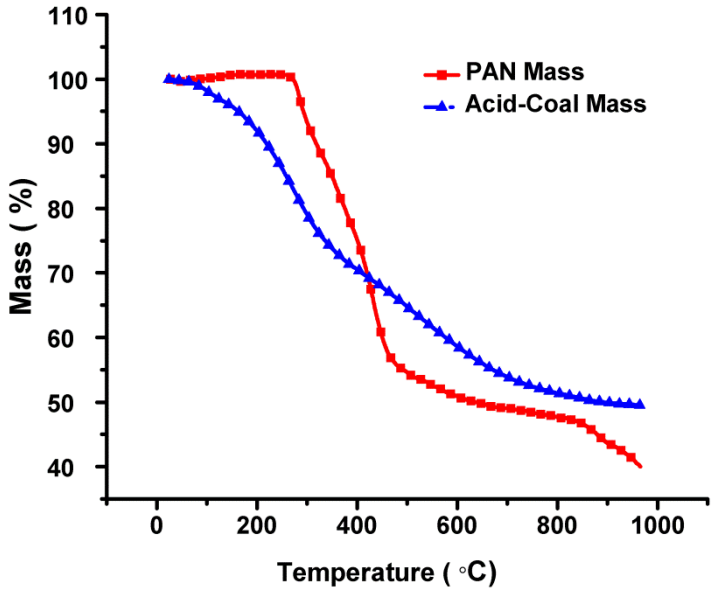

Fig S2 Thermogravimetric analyses of acid treated coal and PAN

Table S1 Ash content coal of raw coal and acid treated coal determined according to GB212-91 in Guobiao standards for the proximate analyses of coal.

	Ash percentage
Acid Treated Coal	6.19 wt%
Raw Coal	7.18 wt%

The initial mass ratios of coal/PAN are calculated as following taking into consideration of the ash content:

We set the initial mass of PAN as 1.0 g. The mass of PAN and coal in precursor solution are listed below:

Table S2 The mass ratio of coal/PAN in each precursor spinning dope

	PAN-Coal-1	**PAN-Coal-3**	**PAN-Coal-5**
M (coal)	0.20 g	0.60 g	1.00 g
M ($coal_{ash\ free}$)[a]	0.19 g	0.56 g	0.94 g
M (PAN)	1.00 g	1.00 g	1.00 g
True mass ratios	19:100	56:100	94:100

a. The mass of coal eliminating the mass of ash

The thermogravimetric analyses of acid treated coal and PAN showed that at 800°C (The carbonization temperature), the mass of PAN and acid treated coal remained 47.7% and 51.4%, respectively. The ash content in acid treated coal is 6.19%. Thus the carbon derived from coal can be calculated as followings: We assume that the initial mass of acid treated coal and PAN are both 100 g. The mass of carbon derived from PAN [M(c,pan)]is 47.67 g, and the mass of carbon derived from acid treated coal [M(c,coal)] plus the mass of ash[M(ash)] is 51.41 g. The proximate analysis showed the ash content of acid treated coal is 6.19 wt%. Thus the mass of carbon derived from coal is 48.41g. The mass ratio of carbon derived from coal is M(c,coal)/[M(c,pan)+M(c,coal)]= 48.41/(48.41+47.67)= 50.30%

The mass ratios of PAN-Coal-1, PAN-Coal-3, and PAN-Coal-5 are calculated to be 16.88%, 37.86%, and 50.30%, respectively.

Table S3 EDS analyses of oxygen and carbon contents.

	CK(at%)	**OK(at%)**
PAN-C	93.2	6.8
PAN-Coal-5	90.0	10.0
PAN-AC	91.5	8.5
PAN-Coal-AC5	90.9	9.1