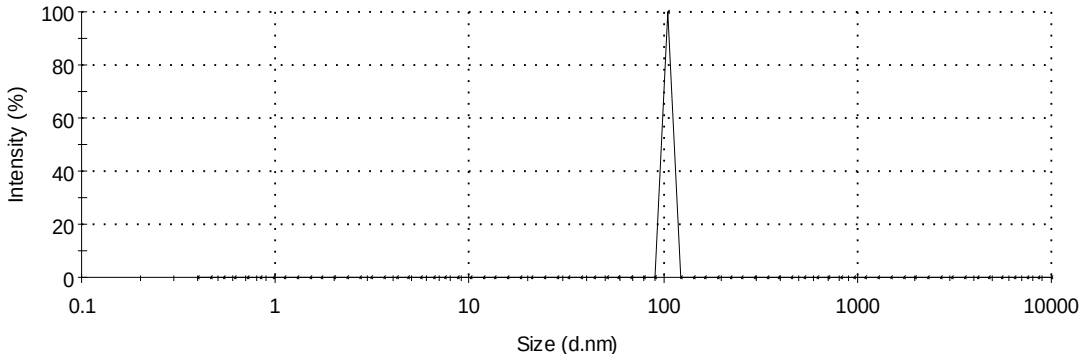
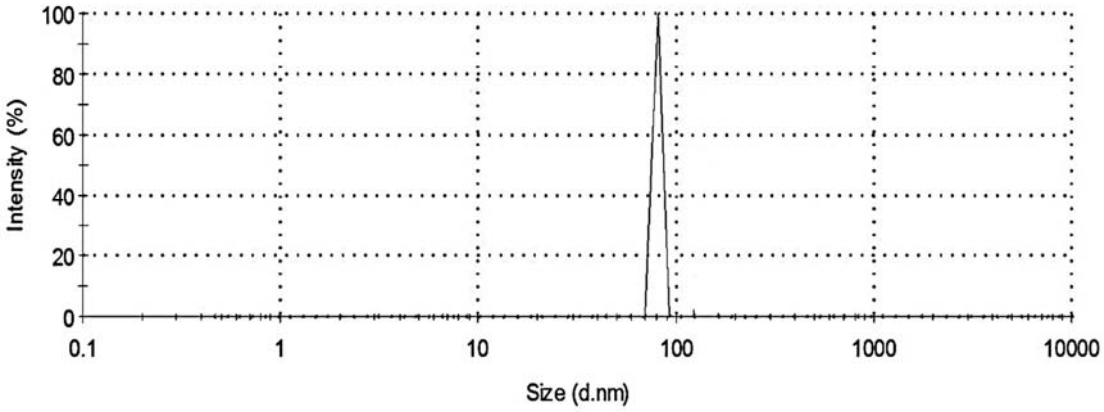
Supporting materials



(a)



(b)

Fig. S1 Particle size distribution of Fe/Pd nanoparticle (a) and nZVI (b)

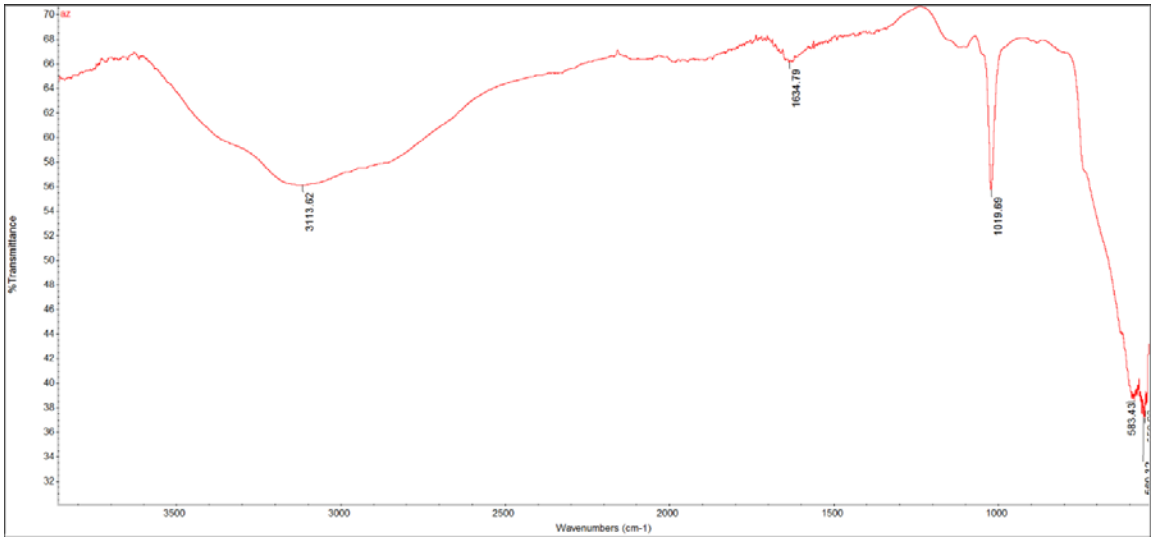


Fig. S2 FT-IR Spectrum of Fe/Pd bimetallic nanoparticles

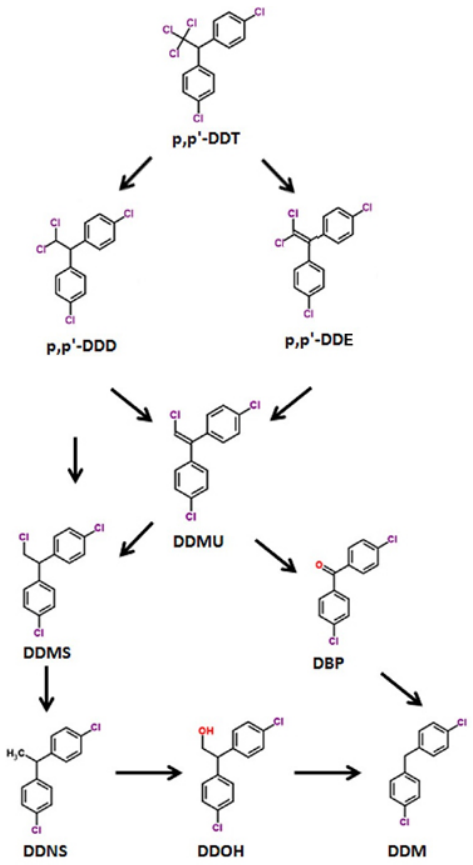


Fig. S3 DDT dechlorination mechanism (Sayles et al. 1997)

Table S1 ANOVA results regarding the DDT removal efficiency

Parameters	Coefficients	Std Err	*t* Stat	*P*-Value	Importance
Intersection	**88.904**	**0.940**	**94.603**	**4.264 E–16**	**Very significant**
x_1	**8.659**	**0.589**	**14.700**	**4.244 E–08**	**Very significant**
x_2	**2.750**	**0.589**	**4.669**	**8.825 E–04**	**Very significant**
x_3	**–4.625**	**0.589**	**–7.851**	**1.386 E–05**	**Very significant**
$x_1 x_2$	0.658	0.833	0.789	0.448	–
$x_1 x_3$	1.713	0.833	2.055	0.069	–
$x_2 x_3$	–0.805	0.833	–0.966	0.356	–
x_1^2	**–4.878**	**0.470**	**–10.381**	**1.126 E–06**	**Very significant**
x_2^2	0.105	0.470	0.222	0.828	–
x_3^2	0.102	0.470	0.2172	0.832	–

Table S2 ANOVA results of the effluent DDD concentration

Parameters	Coefficients	Std Err	*t* Stat	*P*-Value	Importance
Intersection	**1.232**	**0.135**	**9.094**	**3.77 E–06**	**Very significant**
x_1	–0.143	0.085	–1.687	0.122	–
x_2	**0.288**	**0.085**	**3.397**	**0.007**	**Significant**
x_3	**1.061**	**0.085**	**12.496**	**1.99 E–07**	**Very significant**
x_1 x_2	**–0.288**	**0.120**	**–2.399**	**0.037**	**Significant**
x_1 x_3	**–0.374**	**0.120**	**–3.113**	**0.011**	**Significant**
x_2 x_3	0.131	0.120	1.091	0.301	–
x_1^2	–0.125	0.068	–1.839	0.096	–
x_2^2	–0.089	0.068	–1.311	0.219	–
x_3^2	**0.594**	**0.068**	**8.768**	**5.23 E–06**	**Very significant**

Table S3 ANOVA results of the effluent DDE concentration

Parameters	Coefficients	Std Err	*t* Stat	*P*-Value	Importance
Intersection	**0.735**	**0.016**	**46.097**	**5.56 E–13**	**Very significant**
x_1	–0.006	0.010	–0.640	0.536	–
x_2	**–0.047**	**0.010**	**–4.695**	**8.48 E–04**	**Very significant**
x_3	**0.102**	**0.010**	**10.213**	**1.31 E–06**	**Very significant**
x_1 x_2	0.021	0.014	1.453	0.177	–
x_1 x_3	**0.052**	**0.014**	**3.692**	**0.004**	**Significant**
x_2 x_3	–0.016	0.014	–1.118	0.290	–
x_1^2	**–0.055**	**0.008**	**–6.934**	**4.02 E–05**	**Very significant**
x_2^2	**–0.065**	**0. 008**	**–8.122**	**1.03 E–05**	**Very significant**
x_3^2	**–0.057**	**0. 008**	**–7.145**	**3.12 E–05**	**Very significant**

Table S4 Highest initial DDT concentration data providing carcinogen limit at the efflux

Variables	$\propto$	Uncodded values
Reaction time (x_1)	0.888	44.3 min
Fe/Pd Concentration (x_2)	2	550 mg/L
Initial DDT Concentration (x_3)	–0.334	109.95 μg/L

Notes: The removal efficiency is 99.792%; the effluent DDT concentration is 0.229 μg/L

Reference

Sayles G D, You G, Wang M, Kupferle M J (1997). DDT, DDD, and DDE dechlorination by zero-valent iron. Environmental Science & Technology, 31(12): 3448–3454