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**Supplementary Material** 

## Mechanisms and Performance of Calcium Peroxide-Enhanced Fe(II) Coagulation for Treatment of Microcystis

## aeruginosa-laden Water

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Fig. S1. The calibration curve of the algal absorbance at 680 nm and algal cell density.



Fig. S2. Effects of FeSO<sub>4</sub> on algae removal.



Fig. S3. Effects of CaO<sub>2</sub> pre-oxidation time on algae removal (CaO<sub>2</sub> dose: 0.5 mM).



Fig. S4. Effects of CaO<sub>2</sub> enhanced coagulation on solution pH.



Fig. S5. Effects of  $CaO_2$  enhanced coagulation on EEMs of DOM. (0) control group, (m-n): m represents different concentrations of  $CaO_2$ , in which 1 ~ 6 mean  $CaO_2$  doses ranging from 0 to 1.0 mM. n represents DOM after different processes, in which 1 is DOM after pre-oxidation, 2 is DOM after coagulation, and 3 is DOM after sedimentation.

Peak	Retention time	MW	Peak	Retention time	MW
No.	(min)	(Da)	No.	(min)	(Da)
1	31.77	18,373	8	36.18	735
2	33.82	4,115	9	45.75	< 100
3	34.42	2,655	10	49.6	< 100
4	34.95	1,803	11	25.2	> 80 k
5	35.27	1,428	12	30.8	37,298
6	39.17	< 100	13	32.86	8,292
7	54.76	< 100	14	29.86	74,074

Table S1. Retention time and corresponding apparent molecular size of different peaks