

Table 3: Overview over Algorithms

Name	Variances	Update ^a	# Factors	Derivation	CS ^b	Reference
AMP	avg	parallel	2	Approximation of BP (LSL)	✓	[Mal11]
sweptAMP	ind	sequential	2	Approximation of BP (LSL)	✓	[MKTZ15]
bISF	avg	parallel	2	signal processing view	✓	[Spa19]
euISF	avg	parallel	2	signal processing view	✓	[Spa19, MP17]
ivISF ^c	ind	parallel	2	signal processing view		
seqISF ^d	ind	sequential	2	signal processing view		
VAMP	avg	parallel	2	EC framework / Min BFE under MM	✓	[RSF17]
ECind	ind	parallel	2	as above	✓	[OW05a, FSG20]
seqECind	ind	sequential	2	as above		[OW05a, App. D], [HH11]
VAMPire	ind	parallel	2	as above + signal processing view	✓	[FSG20]
seqVAMPire	ind	sequential	2	as above + signal processing view	✓	EUSIPCO paper 2021
EP	avg ^e	parallel	$M + 1$	Min BFE under MM	^f	[Min01c]
seqEP ^g	ind	sequential	$N \cdot M$	Min BFE under MM		[Min01c]
relaxed BP ^h	ind	sequential	$N \cdot M$	BP with means and variances	✓	[KMS ⁺ 12a]
EC-DLA ⁱ	both	p/s	2	Min splitted BFE under MM (SPP)	✓	[OW05a], book chapter
BP-DLA	?	?	variable	Min bounded BFE under MM (SPP)		[Hes03]
EC-SR	avg	parallel	2	MM-BFE + LSL	✓	[KV14]
S-AMP	avg	parallel	2	generalization of AMP (LSL)	✓	[CWF14]

BP: belief propagation, LSL: large system limit, MM: moment matching, SPP: saddle point problem

^aof variables

^bhas been applied to the compressed sensing problem

^chas an uncomfortable high complexity

^dimplemented but not yet simulated thoroughly

^ecurrently only avg is implemented, ind tbd, avg case shows no benefit until now

^ffor two factors in form of EC/VAMP

^gshould be equal to Gaussian BP

^hprobably similar to mvMP

ⁱyielding ECopt_c, ECopt_s, ECseq_c, and ECseq_s, where the first two can utilize either avg or individual variances, the latter only individual