

Potential energy curves and transition dipole moments for the low-lying $\Omega = 0, 1$ states of ArH^+

R/a_0	E/cm ⁻¹									
	X0+	b0+	A0+	d0+	b1	B1	a1	d1	c1	D1
1.80	22548.6	136116.0	154236.0	170812.0	135527.0	144322.0	153683.0	157437.0	158338.0	165552.0
1.85	17701.0	129166.0	149246.0	165608.0	128556.0	137140.0	148722.0	152598.0	153097.0	160443.0
1.90	13671.4	122963.0	145067.0	161159.0	122330.0	130642.0	144554.0	148296.0	148506.0	154928.0
1.95	10352.9	117374.0	141681.0	157352.0	116766.0	124798.0	141207.0	143710.0	145036.0	149097.0
2.00	7650.5	112338.0	138878.0	152377.0	111766.0	119520.0	138417.0	138873.0	142209.0	144601.0
2.05	5479.8	107773.0	135523.0	150829.0	107176.0	114671.0	133515.0	135970.0	139858.0	141353.0
2.10	3766.7	103614.0	133547.0	147101.0	103045.0	110256.0	128112.0	133960.0	137948.0	138920.0
2.15	2446.2	99950.0	132942.0	143593.0	99426.0	106186.0	123089.0	132347.0	136402.0	136967.0
2.20	1461.7	96463.0	131722.0	140212.0	95942.0	102449.0	118471.0	131137.0	135164.0	135279.0
2.25	764.2	93293.0	130821.0	136769.0	92766.0	98983.0	114047.0	130228.0	134077.0	134179.0
2.30	311.4	90372.0	130158.0	133573.0	89847.0	95788.0	109827.0	129570.0	133102.0	133441.0
2.35	67.0	87668.0	129687.0	130529.0	87139.0	92799.0	105721.0	129108.0	132301.0	132921.0
2.40	0.0	85163.0	127620.0	129401.0	84637.0	90034.0	102041.0	128805.0	131760.0	132583.0
2.45	83.9	82808.0	124808.0	129223.0	82275.0	87409.0	98536.0	128625.0	131352.0	132358.0
2.50	296.4	80582.0	122054.0	129171.0	80051.0	84974.0	95206.0	128587.0	131114.0	132239.0
2.55	618.2	78525.0	119388.0	129231.0	77987.0	82659.0	92042.0	128643.0	130866.0	132199.0
2.60	1033.1	76603.0	116777.0	129364.0	76067.0	80474.0	89146.0	128785.0	130814.0	132242.0
2.70	2088.7	73139.0	111785.0	129694.0	72590.0	76531.0	83727.0	129117.0	130781.0	132497.0
2.75	2706.9	71595.0	109387.0	129929.0	71038.0	74735.0	81305.0	129354.0	130842.0	132736.0
2.80	3372.9	70117.0	107096.0	130202.0	69561.0	73085.0	79059.0	129636.0	130948.0	132943.0
2.85	4078.4	68750.0	104864.0	130546.0	68187.0	71511.0	76922.0	129968.0	131120.0	133226.0
2.90	4816.2	67500.0	102689.0	130901.0	66935.0	70040.0	74997.0	130339.0	131301.0	133564.0
2.95	5579.7	66334.0	100612.0	131259.0	65759.0	68683.0	73150.0	130689.0	131522.0	133910.0
3.05	7159.4	64215.0	96554.0	132038.0	63628.0	66216.0	69864.0	131465.0	131894.0	134563.0
3.15	8774.6	62353.0	92757.0	132769.0	61755.0	64080.0	67023.0	132198.0	132534.0	135274.0
3.25	10389.4	60755.0	89173.0	133463.0	60149.0	62181.0	64581.0	132943.0	132963.0	135936.0
3.50	14269.8	57525.0	81138.0	135032.0	56878.0	58359.0	59901.0	134062.0	134481.0	137250.0
3.75	17833.2	55281.0	74323.0	135979.0	54589.0	55561.0	56791.0	134428.0	135429.0	137715.0
4.00	20975.2	53692.2	68767.0	136310.0	52914.3	53500.2	54702.6	134563.0	135755.0	137560.0
4.20	23178.1	52683.7	65058.8	136051.3	51904.2	52280.0	53559.4	134428.7	135508.2	137253.1
4.40	25103.3	51976.4	61964.4	135607.6	51159.1	51408.3	52728.6	134359.0	134971.0	136940.3
4.60	26760.8	51481.1	59437.0	135034.3	50619.6	50795.8	52134.0	134240.2	134373.8	136551.1
4.80	28169.3	51131.2	57399.1	134215.7	50237.9	50373.6	51716.1	133691.1	133943.0	135912.0

Supplementary Material for PCCP
This journal is © The Owner Societies 2007

5.00	29351.4	50878.0	55758.0	133190.0	49975.5	50088.8	51428.9	132672.0	133651.7	135001.2
5.20	30333.9	50687.2	54423.9	132191.8	49802.0	49901.9	51237.3	131650.7	133082.2	134020.6
5.40	31142.7	50535.7	53419.4	131103.2	49693.8	49783.6	51114.7	130560.8	132164.8	132936.4
5.60	31801.2	50408.5	52683.2	129978.3	49632.4	49712.5	51041.4	129432.9	130956.6	131812.0
5.80	32330.9	50296.7	52142.1	128863.1	49603.6	49673.6	51002.8	128304.8	129583.1	130629.9
6.00	32753.4	50195.8	51764.8	127774.0	49596.8	49656.1	50988.2	127202.0	128252.0	129392.0
6.20	33089.1	50104.0	51511.3	126858.2	49604.3	49652.6	50990.0	126266.2	127125.5	128346.9
6.40	33354.0	50021.2	51349.7	125928.6	49620.2	49658.4	51002.7	125310.3	126027.4	127353.6
6.60	33562.6	49948.3	51253.5	125159.8	49640.5	49670.1	51022.2	124501.8	125120.0	126501.3
6.80	33728.5	49886.1	51201.4	124589.2	49662.4	49685.4	51045.7	123889.4	124449.0	125825.3
7.00	33861.4	49835.4	51177.2	124011.0	49684.1	49702.7	51071.0	123279.0	123824.0	125204.0
7.20	33967.6	49796.5	51169.3	123469.6	49704.4	49721.1	51096.6	122691.1	123255.5	124655.6
7.40	34052.9	49769.3	51169.8	123001.9	49722.7	49739.5	51121.4	122172.5	122770.1	124187.2
7.60	34122.7	49752.9	51174.0	122633.4	49738.7	49757.4	51144.5	121768.6	122390.6	123798.7
7.80	34180.9	49745.9	51179.4	122361.0	49752.2	49774.2	51165.0	121483.7	122113.5	123487.7
8.00	34229.4	49746.8	51185.3	122153.0	49763.6	49789.5	51182.2	121281.0	121909.0	123249.0
8.20	34270.0	49753.4	51192.6	121981.4	49772.9	49802.9	51196.4	121126.5	121749.7	123074.8
8.40	34304.2	49764.0	51200.3	121838.9	49780.5	49814.5	51208.2	121003.1	121623.9	122946.5
8.60	34333.6	49776.9	51206.5	121723.8	49786.7	49824.3	51217.9	120898.5	121523.8	122843.7
8.80	34359.2	49790.1	51212.1	121638.3	49791.9	49832.5	51226.2	120815.6	121450.3	122761.4
9.00	34381.4	49801.0	51220.1	121589.0	49796.3	49839.3	51233.6	120772.0	121412.0	122711.0
9.20	34400.7	49807.8	51232.8	121580.1	49800.5	49845.1	51240.4	120780.8	121415.2	122701.0
9.40	34417.7	49812.1	51246.7	121605.7	49804.4	49850.6	51246.6	120833.5	121453.1	122727.4
9.60	34432.7	49816.1	51257.5	121658.0	49808.2	49856.7	51252.0	120916.4	121516.1	122783.0
9.80	34446.2	49820.2	51264.1	121731.3	49812.1	49862.9	51256.3	121020.0	121598.4	122862.0
10.00	34458.4	49822.7	51269.0	121823.0	49816.1	49868.0	51259.4	121139.0	121698.0	122960.0
12.00	34532.4	---	51263.2	123354.0	49824.7	---	51264.8	122765.0	123298.0	124531.0
50.00	34608.4	49837.2	51255.3	126866.0	49837.2	49837.2	51255.3	126239.0	126888.0	128491.0

R/a_0 mu/ea_0

X0^+ - A0^+

1.80 -0.00338
1.85 -0.00314
1.90 -0.00294
1.95 -0.00285
2.00 -0.00312
2.05 -0.00146
2.10 0.00147
2.15 0.00880
2.20 0.01147
2.25 0.01635
2.30 0.02733
2.35 0.10606

Supplementary Material for PCCP
This journal is © The Owner Societies 2007

2.40 0.89308
2.45 0.94901
2.50 0.99974
2.55 1.04598
2.60 1.09231
2.70 1.16634
2.75 1.19887
2.80 1.23072
2.85 1.26007
2.90 1.28758
2.95 1.31362
3.00 1.33896
3.05 1.36330
3.15 1.40926
3.25 1.45188
3.50 1.54529
3.75 1.62428
4.00 1.68901
4.25 1.73583
4.45 1.75777
4.55 1.76187
4.75 1.75358
5.00 1.70857
5.25 1.62210
5.50 1.49048
5.75 1.31295
6.00 1.09663
6.25 0.86346
6.50 0.69407
6.75 0.54401
7.00 0.43344
7.50 0.30205
8.00 0.20490
8.50 0.13771
9.00 0.09227
9.50 0.06377
10.0 0.04479

$X_0^+ - b_0^+$

1.80 2.687E-4
1.85 5.070E-4
1.90 0.00149
1.95 0.00284
2.00 0.00467
2.05 0.00686
2.10 0.00906
2.15 0.01177
2.20 0.01349
2.25 0.01510
2.30 0.01656
2.35 0.01796
2.40 0.01928
2.45 0.02055
2.50 0.02180
2.55 0.02305
2.60 0.02493
2.70 0.02727
2.75 0.02849
2.80 0.02974
2.85 0.03105
2.90 0.03245
2.95 0.03387
3.00 0.03541
3.05 0.03702
3.15 0.04051
3.25 0.04401
3.50 0.05608
3.75 0.07227
4.00 0.09331
4.25 0.12116
4.75 0.20497
5.00 0.27114
5.25 0.35510
5.50 0.45660

Supplementary Material for PCCP
This journal is © The Owner Societies 2007

5.75 0.56965
6.00 0.67614
6.25 0.74425
6.50 0.71215
6.75 0.66316
7.00 0.59012
7.50 0.43064
8.00 0.31426
8.50 0.21729
9.00 0.15118
9.50 0.10430
10.0 0.07313

X0⁺ - d0⁺

1.80 -0.02940
1.85 -0.02767
1.90 -0.02382
1.95 -0.01320
2.00 0.00156
2.05 0.20421
2.10 0.36485
2.15 0.49062
2.20 0.59485
2.25 0.68596
2.30 0.76220
2.35 0.82571
2.45 0.01663
2.50 0.00911
2.55 0.00560
2.60 0.00997
2.70 0.01229
2.75 0.01318
2.80 0.01392
2.85 0.01455
2.90 0.01505
2.95 0.01567
3.00 0.01631
3.05 0.01695
3.15 0.01791
3.25 0.01802
3.50 0.02148
3.75 0.02446
4.00 0.02578
5.00 0.02809
5.25 0.03537
5.50 0.05244
5.75 0.07057
6.00 0.09011
6.25 0.11425
6.50 0.13419
6.75 0.16017
7.00 0.18918
7.50 0.22319
8.00 0.26229
8.50 0.29109
9.00 0.30369
9.50 0.31340
10.0 0.30832

X0⁺ - b1

1.80 3.288E-4
1.85 0.00149
1.90 0.00230
1.95 0.00299
2.00 0.00319
2.05 0.00353
2.10 0.00360
2.15 0.00361
2.20 0.00349
2.25 0.00377
2.30 0.00381
2.35 0.00422
2.40 0.00435

Supplementary Material for PCCP
This journal is © The Owner Societies 2007

2.45 0.00487
2.50 0.00501
2.55 0.00560
2.60 0.00585
2.70 0.00681
2.75 0.00764
2.80 0.00790
2.85 0.00878
2.90 0.00919
2.95 0.01022
3.00 0.01060
3.05 0.01155
3.15 0.01246
3.25 0.01350
3.50 0.01653
3.75 0.01986
4.00 0.02131
4.25 0.01887
4.75 0.01304
5.50 -0.00209
5.75 -0.00723
6.00 -0.00991
6.25 -0.01228
7.00 -0.00613
7.50 -0.00168
8.00 -6.455E-4
8.50 -1.48E-5
9.00 0.00107
9.50 0.00120
10.0 9.984E-4

X0⁺ - B1

1.80 0.04376
1.85 0.04940
1.90 0.05201
1.95 0.05404
2.10 0.05289
2.15 0.04985
2.20 0.04757
2.25 0.04653
2.30 0.04640
2.35 0.04684
2.40 0.04769
2.45 0.04893
2.50 0.05008
2.55 0.05138
2.60 0.05275
2.70 0.05534
2.75 0.05652
2.80 0.05806
2.85 0.05909
2.90 0.06023
2.95 0.06125
3.00 0.06208
3.25 0.06162
3.50 0.05894
3.75 0.05329
4.00 0.04811
4.25 0.04579
4.75 0.04419
5.25 0.04161
5.50 0.03801
5.75 0.03423
6.00 0.02993
6.50 0.02408
6.75 0.02086
7.00 0.01753
7.50 0.01354
8.00 0.00982
8.50 0.00708
9.00 0.00495
9.50 0.00342
10.0 0.00249

Supplementary Material for PCCP
This journal is © The Owner Societies 2007

X0⁺ - a1

1.80	0.07682
1.85	0.07852
1.95	0.07930
2.00	0.07574
2.05	0.00471
2.10	0.00349
2.15	0.00289
2.20	0.00240
2.25	0.00234
2.30	0.00215
2.35	0.00233
2.40	0.00226
2.45	0.00258
2.50	0.00258
2.55	0.00303
2.60	0.00307
2.70	0.00379
2.80	0.00474
2.90	0.00598
3.00	0.00763
3.05	0.00907
3.15	0.01111
3.50	0.02196
3.75	0.03160
4.00	0.03737
4.25	0.03910
4.75	0.03603
5.00	0.03221
5.25	0.02897
5.50	0.02645
5.75	0.02369
6.00	0.02067
6.25	0.01789
6.75	0.01342
7.00	0.01158
7.50	0.00870
8.00	0.00596
8.50	0.00420
9.00	0.00295
9.50	0.00205
10.0	0.00149