# Ramamurthy. 6406

A.S. Ramamurthy, Professor of Engineering, BCEE dept. Concordia University, Montreal

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**1. Biographical data:** A. S. Ramamurthy obtained the M. Sc. Engg degree in Hydraulics from the Indian Institute of Science, Bangalore (India) in 1960. He got the Ph.D. degree in Fluid Mechanics from Purdue University (USA) in 1966. He served the Indian Institute of Science, Bangalore as an assistant professor during 1966-1968. In 1968, he joined Purdue University as a visiting assistant professor (1968-1970). In 1970, he became an assistant professor at Concordia University (Montreal). Since 1975, he is a professor of Civil Engineering at Concordia University. His research topics are related to Fluids Engineering, Hysraulics and Environmental Engineering.

**2. Teaching activities (1970-2012):** He has taught 18 undergraduate courses [Statics, Dynamics, Fluid mechanics I, Fluid mechanics II, Engineering drawing, Numerical methods, Probability and random processes, Environmental engineering, Air pollution, Water quality, Water supply, Urban sanitation, Waste water systems, Chemical and Biological aspects of Environmental engineering, Hydraulics, Hydrology, Hydraulic engineering and Hydraulic structures] and 14 graduate courses [Numerical methods II. Probabilistic methods, Boundary layer theory, Turbulence, Fluid mechanics, Hydraulic machines, Environmental engineering, Air pollution, Water quality, Unit operations in Env. Engineering, Hydraulic engineering, Water resource systems, Hydraulic structures and Graduate seminar].

**3. Participation in committees:** 3 years as member of SCAPP. 19 years as GPD and 4 years as UGPD of BCEE unit. 16 years as member of DPC of CE and BCEE units. 28 years as member of faculty council. Served as a member of several other committees (curriculum, space, library, election, etc.).

## 4. Research contributions

1. Research areas, activities and recognition: 1a. i. Hydraulic Engineering & ii. Environmental engineering

1a.i. Flow Induced Vibration & Cavitation ii. Lateral Flows iii. Flow Measurement and control. iv. CFD.

ii. Chemistry & Hydraulics applications to soil & water pollution problems, climate effects, Phytotechnology and Nanotechnology

**1a-i. Flow induced vibration and cavitation:** Our previous research studies have provided useful design information related to vibration characteristics of flows past bluff bodies and irregularities. Test results verified predictions based on sound fluid mechanics principles. Results were published in journals of high standing (*ASME/Sound and Vibration/Roy Aero. Soc/ASCE*).

Fluid mechanics of lateral flows in closed conduits and open channels: Most of the existing studies related to lateral flows often relied heavily on empirical constants tied to test data. Often, flow processes were not described in detail. Our studies on lateral flows provide detailed flow characteristics in terms of flow profiles (open channel case), pressure fields and velocity fields in closed conduit and open channel flows involving lateral flows. Both mean and fluctuating velocity data were obtained by LDA systems to describe details of flow processes involved. *Test programs* were tied to the development of *analytical models* based on basic hydraulic principles. Analytical and experimental results were complimented by *numerical modeling data*. All results were published in highly established journals such as *ASME/ASCE/IAHR/CJCE/JICE* (*London*).

**Flow measurement and control:** The studies conducted and published in flow measurement and control includes theoretical, experimental and numerical studies involving various hydraulic measuring devices used in lab and field practice. Theoretical predictions were verified by test results to uphold the soundness of the assumptions used. Results were published in high caliber journals. **Computational fluid dynamic modeling:** Results of a large number of previous experimental studies related to flow measurement, and control completed by us and others were used to validate CFD modeling of these studies. RSTM (Reynolds stress transport model) as well as RNG and k- $\varepsilon$  models were used to this end. A properly validated CFD model provides the behavior of flow for the cases where the boundary conditions get altered slightly, without recourse to expensive experimental studies. The results were published in *ASME/ASCE/IAHR journals*.

Environmental engineering studies: A short contribution to environmental engineering was also provided in terms of a few studies related to site remediation (Ex: surfactant enhanced soil bound heavy metal removal, Phytoremediation of mixed contaminants) as well as effects of climate change on the run off from water sheds. Results were published in journals of high repute (J Haz *Materials/WAS/J* Envl Sc and Health A). I have trained 3 *Ph.D. (Phytotechnology, Climate effects & Nanotechnology)* candidates. The results of the 3 doctoral projects have appeared as 4 journal papers in Phytotechnology (2012-2014), 5 journal papers on Climate effects (2012-15), as well as 4 journal papers on Nanotechnology (2013- 2015). 10 graduate scholars were also supervised at M.A.Sc level in environmental engineering. The corresponding papers have been published in environmental engineering journals (2008-2015). Publications: Results of the studies were published in journals such as of *ASME, ASCE, CJCE and IAHR*. 65 of 108 journal papers published are in the primary (*ASCE/ASME*) journals.

### 1a-ii: Data on services rendered and recognition received

External examiner: Assessed thesis at Universities in the areas of *Fluid Mechanics, Hydraulic Engineering and Environmental Engineering* in Canada. The list includes Univ. of Alberta, Univ. of Ottawa, Univ. of Windsor and McGill Univ.

Reviewer: NSERC grants -Hydraulic engineering & Environmental engineering [Discovery/Strategic (2009-2014), CFI (2010-2013)]

Associate editor: Canadian journal of Civil Engineering (CJCE) Fellow: ASME (1982), ASCE (1985) and CSCE (2003).

Main research grant: NSERC: Continuous grant for 49 yrs (1970 to 2018). Current session: \$140,000/5yrs (2013-2018).

**Recipient:** National award (CSCE-2010) for contributions to Hydro technical Engineering in Canada.

**1b.iii. Training HQP: Training HQP (1972-14):** PDF=24, Ph.D. = 18 & M.A.Sc = 60 (see data table). **Training HQP - (2007-14 grant assessment years):** PDF = 4, Ph.D. = 5 & M.A.Sc. = 10

#	Student	Ph.D. topics: Hydraulic Eng & Environmental Eng (1973-2014)	Period
1	P. M. Lee	Flow induced vibration of bluff bodies	1971-73
2	P. Bhaskaran	Cavitating flow past bluff sources	1973-77
3	B.L. Carballada	Characteristics of lateral flows	1974-78
4	U. Sunday. Tim	Flow control and measurement in open channels	1982-87
5	M.G.Satish	Characteristics of diverging lateral flows	1983-87
6	D. M. Tran	Junction Flows in open channels	1984-88
7	R. Balachandar	Separation characteristics of Cavitating flows	1985-90
8	N.D. Vo	Curvilinear flow past circular weirs	1988-92
9	W M Zhu	Dividing and combining conduit flows	1992-96
10	R Saade	Modeling surges caused by break-up ice jams	1990-95
10	H Gill	Water hervesting in arid ragions by optimal control	1003.08
11		Tuckulance abare training of simular control	1993-98
12	S. F. Sagnravani	lurbulence characteristics of circular counter jets	1998-02
13	J. Qu	3D turbulence modeling of free surface flows	2001-05
14	R. Tadayon	Modeling highly curvilinear flows using reduced NSE	2005-09
15	S. S. Han	Experimental and numerical study of bend flows	2005-10
16	H. Ramadan	Temperature and precipitation the Litani Basin	2006-12
17	R. Memarian	Phytoremediation of mixed contaminants	2007-12
18	M. Eglal	Nanofer NZVI: Morphology reactivity with contaminants	2010-14
	Student	Recent (18) M.A.Sc -Hyd. Engg & Env. Engg [2000-12]	Period
1	X.Li	Surfactant enhanced sorption of Cu [II] in soils	1998-00
2	A. Duffield	Surfactant enhanced mobilization of NAPL	1999-01
3	S.S. Han	3D modeling of mixing in river confluences	2000-02
4	X.P.Zhao	Hydraulic barriers for site remediation	2000-03
5	C. Zhai	Hydraulic principles applied to flow measurement	2001-03
6	M. Tudor	Characteristics of counter flowing jets	2000-03
7	X.J Li	Removal of Cu (II) and Zn (II) from soil using surfactants	2001-03
8	A. George	Simulation of flow and sediment transport	2003-05
9	F. Sanchez	Impact of flares in off shore platforms in Mexico	2003-06
10	H. Mehedi.	Removal of Cr(VI). Ni(II) and Zn(II) using surfactants	2005-06
11	H.Shalchian	Removal of Cu(II) Pb (II) &Cd (II)using surfactants	2005-07
12	Ji.Kai	V-shaped Multi-slit weir characteristics	2006-07
13	Z. Aman	Surfactant enhanced removal of HOCs and heavy metals	2006-08
14	A.E.Haaue	Flow characteristics of open channel transitions	2006-08
15	M.Alkayeed	Hydroclone flow characteristics	2007-09
16	X.Li	Removal of petroleum products from contaminated soils	2007-09
17	K.Mangrulkar	Experimental and numerical study of lateral weir flows	2009-11
18	E.M.Abbadi	Enhanced Phytoremediation using AC current.	2009-11

1b-iv. Research supervision & publications: Training Highly qualified personnel: PDF=24, Ph. D =18 & M.A.Sc = 60

1c. Current students: Ph. D: 5. M.A.Sc: 3. 1. D. Tapa (shared), 2. M. Mamun. 3. M, Allayed, 4. W. Ahmed. 5. M. Ashawi 1. Y. Barka. 2. E.Melhem.3. V. Jesudas (Shared Supn – Univ .of Windsor stdt)

1d. 8 joined Universities: 1. Dr. P. M. Lee: Prof. Mech. Eng, Lake Head Univ. (1975-02, Rtd), 2. Dr. M. G. Satish: Prof/Asoc. Dean, Dalhousie Univ (1988-), 3. Dr. R. B. Chandar: Prof/Asoc. Provost, Univ of Windsor (2003-), 4. Dr. U. S. Tim: Prof (Agr. & Bio-systems Eng, Iowa State Univ (2004-). 5. Dr. R. Saade, Assoc. Prof. JMSB, Concordia (2005-), 6. Dr. R. Tadayon. Asst. Prof (Youngstown Univ, Ohio 2012-).7. Dr. S. Saghravani, chair-Civil Eng, Shahrod Univ, Iran (2004), 8. Dr. S. S. Han PDF Concordia (2012-)

1e. 5 joined Govt: [Dr. D.M. Tran, Quebec, and Dr.P.Bhaskaran, Alberta, Dr. H. Gill, Washington] & Industry (Dr. Qu, KGS group, Winnipeg, Dr. L. Carballada, Hydro Quebec, Montreal),

1f. 3 retired & 2 are new graduates.

2. Publications (Life time): 232. Jl. : 108 (65 ASCE/ASME +43 Other) + Conf.: 124. 2006-2015:56. Jl.: 35 (16 ASME/ASCE+19 Other) + Conf 21. 2a. Selected Journal papers. Bold fonts denote students.

- 1. Ramamurthy, A.S, Han. S.S and Biron, P.M. "Three-dimensional simulation parameters for sharp open-channel bend flows".
- J, Comptg in Civil Engg, ASCE, 2013, 27(3), 282-291.
- 2. Ramamurthy. A.S, Kai. J and Han. S. S. "V-Shaped Multislit weirs",
- J. Ir& Dr. Engg. ASCE, 2013, 139(7), pp 582-585.
- 3. Ramamurthy. A.S, Tadayon. R and Allayed. M. "LDA Measurement in Cylindrical containers without using planar secondary units".
- J. Hyd. Engg. ASCE, 2012, 138 (11), pp 970-973.
- 4. Ramadan, H, Beighley, R., and Ramamurthy, A. (2013). "Temperature and Precipitation Trends in Lebanon's Largest River: The Litani Basin",
- J. Water Res. Planning & Management. ASCE, 139(1), 86–95.
- 5. Tadayon. R and Ramamurthy. A. S. "Discharge Coefficient for Siphon Spillways",
- J. Ir. & Dr. Engg, ASCE, 2012, 139 (3), 267-270.
- 6. Han, S.S, Ramamurthy, A.S. and Biron, P.M. (2011) "Characteristics of flow around ...90° bends..".
- J. Ir & Dr. ASCE, 137, 10, 668-676.
- 7. Saghravani. S. and Ramamurthy A.S. "Penetration Length of Confined Counter Flowing Free Jets",
- J. Hyd. Eng. ASCE, 2010, (136,3), p 179-182.
- 8. Ramamurthy. A. S, Tadayon. R. "Numerical simulation of flows in cut-throat flumes",
- J. Irr &Dr, ASCE, Dec. 2008, (134, 6), p 857-860.
- 9. Tadayon. R and A.S. Ramamurthy. "Turbulence modeling of flows over circular spillways ",
- J. Irr &Dr, ASCE, 2009, (135, 4), pp 493-496.
- 10. Ramamurthy, A.S, Qu. J and Vo. D, "Numerical and experimental study of dividing open channel
- Flows" J. Hyd. Engg, ASCE, 2007 (133, 10), pp1135-1144.
- 11. Ramamurthy. A. S, Qu. J and Vo. D, "Simulation of flow past open channel floor slots".
- J.Hyd. Engg, ASCE, 2007, (133, 1), p106-110.
- 12. Ramamurthy. A. S., Qu, J, and Vo. D. "Multi slit weir flow characteristics",
- J. Ir& Dr, ASCE, 2006, (133, 2), p108-120.
- 13. Ramamurthy. A.S., Qu, J., and Vo. D. "VOF model for a free overfall in trapezoidal channels",
- J. Ir.& Dr. ASCE, 2006, (132, 4), p425-428.
- 14. Ramamurthy, A.S, Qu, J, Zhai, C and Vo.D. Simulation of dividing flows in rectangular conduits".
- J. Fl. Engg. TASME, 2006(128, 4), p 1126-1129.
- 15. Ramamurthy. A.S, Qu, J and Vo. D. "Nonlinear PLS method for weir flow characteristics".
- J. Irr. & Dr. ASCE, 2006, (132,5), p 486.489.
- 16. Ramamurthy. A.S, Qu, J and Zhai, C. "Simulation of combining flows based on k- model".
- J. Hyd. Engg, ASCE, 2006 [132, 2], p 214-218.
- 2b. Listing of journal papers-Other Jls. (2006-2014): 18 (18 of 34 journal publications)
- 17. Ramamurthy A.S., Qu. J and Vo. D. "Numerical model for flow past slots in rectangular conduit"
- J. Hyd. Rsch, IAHR, 2007, (45, 5), p 686-690.
- 18. Vo.D, Ramamurthy. A. S, Qu. J & Zhao. X.P. "Containment well barriers.. Boundaries", J. Haz. Materials, 2008, Dec. 2008, (160, 1), pp 240-243.
- 19. Ramamurthy A.S, Li. X, Qu. J and Vo.D: "Surfactant enhanced removal of Cu (II)...soil". Water, Air, and Soil Poln, (190, 1-4), 2008, p197-207.
- 20. Qu. J, Ramamurthy. A.S, Tadayon. R and Chen. Z. "Simulation of Sharp-Crested Weir Flows", CJCE, 2009, (36), p1530-1534.
- 21. Han, S. S, Biron. P and Ramamurthy.A.S. "3-D modeling of flow in sharp open-channel bends",
- J. Hyd. Rsch, IAHR, (49, 1), 2011, p 64-72,
- 22. Ramamurthy. A. S and Memarian. R. Phytoremediation of mixed soil contaminants.
- Water, Air and Soil Poln, 2011, (223, 2), p 511-518.
- 23. Memarian. R and Ramamurthy. A. S. "Effects of surfactants on rhizodegradation .. Soil", J. Envl. Sc and Health, A, 2012, (47, 10), p 1486-1490.
- 24. Memarian. R and Ramamurthy. A. S. "Modeling lead and cadmium uptake by plants in the presence of surfactants". J. Envl. Monitoring and Assessment, 2013, 185 (3), pp 2067-2071.
- 25. Ramadan. H.H, Beighley R.E & Ramamurthy A.S. "Modeling stream flow ... with limited data". J. Hydrological Sci, 2012, (57, 8), pp 1516-1529.
- 26. Ramadan H.H, Ramamurthy, A.S and Beighley R.E. "Inter-annual temperature and precipitation variation..to atmospheric circulation.."J. Theoretical and Applied. Climatology. 2012, 108(3-4), pp 563.
- 27. Delgadio. J. A, Allayed. M and Ramamurthy. A. S. "CFD simulations of a hydrocyclone ...core". J. Mining and Metallurgy, B, 2012, pp 197-206.
- 28. Ramamurthy. A. S and Schalchian. H. "Surfactant assisted removal of Cu (II), Cd (II) and Pb (II) from contaminated soils". Environment protection Engg. 2013, 39 (3), pp 87-99.
- 29. Ramadan H.H, Beighley R.E and Ramamurthy, A. S. "Sensitivity Analysis of Climate Change Impact on the Hydrology of Litani Basin in Lebanon". Intl. J. Envt & Pollution, 2012,52(1), PP 65-81".
- 30. Ramamurthy. A.S and Ramin. M. "Chelate enhanced phytoremediation ... a mixed contaminant", J. Envtl. Earth Sci. 2014, 72 (1), pp 201-206.
- 31. Ramamurthy. A.S, Chen. Z, Li. X.J and Mustafa. M. "Surfactant ... removal of oil from soil", J. Envt protection Engineering, 2015, 2, pp 67-81.
- 32. Eglal. M. M and Ramamurthy. A.S. "Nanofer ZVI: Morphology, kinetics, and applications", J. Nanomaterials, 2014, Vol. 2014, pp 1-11.
- 33.Ramamurthy. A. S and **Eglal. M. M.** "Degradation of TCE by TEOS Coated nZVI in the Presence of Cu (II) for Groundwater Remediation", 2014, *J. Nanomaterials*, 2014, Vol 2014, pp1-9 (<u>http://dx.doi.org/10.1155/2014/606534</u>).
- 34. Eglal. M. M and Ramamurthy.A.S. 2015. "Removal of Pb (II), Cd(II), Cu (II) and trichloroethylene from water by Nanofer ZVI", 2015, J. Environmental Science and Health, Part A, 50 (9), pp 901-912.
- 35.Eglal. M.M & Ramamurthy.A.S. 2015, "Competitive adsorption and oxidation behavior of Heavy metals on NZVI coated with TEOS". J. Water Envt Rsch. 87 (11), 2018-26.
- (http://www.ingentaconnect.com/search/article?option2=author&value2=Mahmoud+Eglal&pageSize=10&index=2)

### 2d. Papers sent for possible publication in journals (2015): 3 (not listed)

#### 2e. Refereed conference presentations (2006-2014):20 [before 2006: 97 - not all are shown]

1.Ramamurthy. A. S, Vo.D and Qu. J "Simulation of conduit slot flow", ICAME conf (Madras) 2006

2.Ramamurthy. A.S, Vo.D and Qu. J. "PLS method for side weir flow" ICAME conf(Madras) 2006

3.Ramamurthy. A.S, Vo.D and Qu.J. "Characteristics of multi-slit weir" ICAME conf.(Madras)2006

- 4.Ramamurthy. A.S, Vo. D, Qu. J. "Simulation of ... conduit flows ", CSCE conf(Quebec City) 2008
- 5.Ramamurthy. A.S, Li. X, Vo. D, Qu. J and Azmal. M "Surfactant enhanced removal of heavy metals from soils", CSCE conf (Quebec City) 2008
- 6.Ramamurthy. A.S, Vo. D, Qu. J. "End depth characteristics ", CSCE conf (Quebec city) 2008
- Ramamurthy, A. S. &Qu. J."3-D simulation of flows....Conduits" CSCE conf. (St. John's) 2009

7.Kai, J. Azmal, and Ramamurthy, A. S, "Slit Weirs ...discharges" CSCE conf. (St. John's) 2009

8.Ramamurthy. A. S, Aman. Z & Azmal, M. "Removal of ... HOC"CSCE conf. (St. John's) 2009

9.Ramamurthy, A. S, Li.X. J, Qu. J.& Azmal, M. "Surfactant enhanced removal of Zn(II) and Cu(II)

from soil". EWRI conf. on Water Res. and Envl Eng, Madras, 2010

10. Chen. Z. Ramamurthy, A. Sand Li.X. "Removal of Petroleum Products from a Soil",

EWRI conf. on Water Res. and Envl Eng, Madras, 2010

- 11. Sagravani.S.F and Ramamurthy, A. S. "Penetration of Round Jets" CSCE conf (Winnipeg)2010
- 12. Ramamurthy. A.S, Chen.Z and Li.X. "Surfactant ...oil from soil", CSCE Conf. (Winnipeg) 2010

13.Ramamurthy. A. S, Elektorowicz. M, Abbadi. E and Smoczynska A." Zinc removal from hydroponic solutions under varied environmental conditions" CSCE Conf. (Ottawa).2011

14. Ramamurthy. A. S and Schalchian. H. "Removal of Cd (II) ... from .soil" CSCE Conf. (Ottawa).2011

15. Ramadan. H. H, Ramamurthy. A. S and Beighley. R.E. "Correlation between different teleconnection patterns and temporal climate variation in the littoral climate variation in...basin". EIC climate change technology conf. (Montreal), 2013.

**16 to 21**: 6 papers presented at 22<sup>nd</sup> CSCE Hydrotech conf. Montreal, May 2015 are **not listed** here.

## 2f. Journal papers (contd. before 2006): Total: 75 (48 ASME/ASCE + 27 other) Listed: 48 of 75

1. Ramamurthy. A. S, Zhai, C and Qu, J, "End depth characteristics in Trapezoidal channels".

- J. Irr. & Dr. ASCE, 2004, [130, 5], 111-122
- 2. Byron. P.B, Ramamurthy. A.S and Han. S.S. "3-D modeling of mixing at river confluences"
- J. Hyd Eng, ASCE, 2004, [130, 5], p 432-436
- 3. Ramamurthy, A.S, Zhu, J and Carballada, B.L. "Dividing rectangular conduit flow characteristics".
- J. Hyd. Engg. ASCE, 1996 (122, 11), p 687-691.
- 4. Ramamurthy. A. S and Zhu. Z. M. "Combining Flows in 90° rectangular closed conduits".
- J. Hyd. Engg. ASCE, 1997 (123, 11), p12-19.
- 5. Balachandar, R. and Ramamurthy, A.S., "Wake characteristics of Cavitating cylinders",
- J. Engg. Mechs. ASCE, 1999 (125, 3), p 356-358.
- 6. Ramamurthy. A. S, Zhu. W. M and Vo, D., "Rectangular Lateral Weirs in a Circular Channel".
- J. Hyd. Div., ASCE, 1995 (120, 7), p. 608-612.
- 7. Ramamurthy, A.S. Zhu, W.M. and Carballada, B.L., "Flow past a two-dimensional lateral slot",
- J. Env. Eng, ASCE, 1994 (120, 6), pp. 1632-1638.
- 8. Ramamurthy, A.S., Vo. D and Balachandar, R. "Irrotational Flow Past a Circular Weir".
- J. Fluids Engg. TASME1994 (115, 2).
- 9. Ramamurthy, A.S. and Vo. D. "Characteristics of Circular weirs",
- J. Hyd. Eng. ASCE.1993. (119, 9), pp1055-1062.
- 10. Ramamurthy, A.S. and Vo. D. " Application of Dressler Theory to Weir Flow,"
- J. Ap. Mechs, **TASME**, 1993 (60, 1), pp. 163-167.
- 11. Balachandar, R, Robillard. L and Ramamurthy. A.S. "Characteristics of counter jet flows".
- J. Fluids Eng. TASME 1992(114, 4) pp 554-559.
- 12. Ramamurthy, A.S., Vo. D. and Vera, G. "Momentum model of flow past a weir",
- J. Ir. & Dr. ASCE, 1992 (118, 4), pp. 988-994.

13. Ramamurthy, A.S. and Balachandar, B., "Choking Cavitation for flow past bluff bodies",

- J. Fluids Eng. TASME 1992 (114, 3) pp 439-442.
- 14. Ramamurthy, A.S., Chandar, R.B. and Govindaram, H.S., "Flow Past Backward Facing Steps",
- J. Fl. Eng., **TASME** 1991(113, 2), pp. 278-284.
- 15. Ramamurthy, A.S., and Balachandar, R, "Characteristics of ... Bluff Body wakes",
- J. Eng. Mechs, ASCE 1991 (108, 3), pp.513-531.
- 16. Ramamurthy, A.S., and Balachandar, R., "Near Wake Characteristics of Cavitating Bluff Bodies".
- J. Fl. Eng, TASME, 1991 (112, 4), pp.492-497, 1990.
- 17. Ramamurthy, A.S., Carballada, B.L. and Tran, D.M., "Combining Open Channel Flows",
- J. Hyd. Eng, ASCE, 1989 (114, 12), pp. 1449-1460.
- 18. Ramamurthy. A.S. and Balachandar, R., "Blockage correction for angular bluff bodies",
- J. Eng. Mechs. ASCE, 1989 (106, 7), pp1569-1576.
- 19. Ramamurthy. A.S, Tran, D.M. and Carballada, B.L., "Dividing Flow in Open Channels",

- J Hyd. Eng, ASCE, 1990 (116, 3), pp. 449-456.
- 20. Ramamurthy, A.S., Tran, D.M. and Carballada, B.L., "FlowThrough Transverse Floor Slots",
- J. Ir. & Dr. ASCE, 1989 (115, 2) pp.251-259.
- 21. Satish. M.G, Ramamurthy, A.S. and Narasiah, K.S., "Pressure Recovery in Open Channels", J Hyd. Div, **ASCE**, 1989 (115, 7), pp. 995-1000.
- 22. Ramamurthy, A.S. and Tim, U.S., "Square Edged and Round Nosed Broad Crested Weirs",
- J Ir and Dr, ASCE, 1988 (114, 1), pp. 61-7.
- 23. Ramamurthy, A.S. and Satish, M.G., "Division of Open Channel Flow in Short Branches",
- J Hyd. Eng. ASCE, 1988 (114, 4) pp.428-438.
- 24. Ramamurthy, A.S. and Satish, M.G., "Internal Hydraulics of Multiport Diffusers",
- J Env. Engg. ASCE, 1987 (113, 3), pp 449-463.
- 25. Ramamurthy, A.S., Tim, U.S. and Rao, M.V.J., "Weir Orifice Units for Flow Distribution",
- J. Env Engg. ASCE, 1987 (113, 1) pp 115-166.
- 26. Ramamurthy, A.S., Tim, U.S. and Rao, M.V.J., "Flow Over Sharp Crested Weirs",
- J. Ir. & Dr. ASCE 1987 (113, 2), pp. 163-172.
- 27. Ramamurthy, A.S., Tim, U.S. and Rao, M.V.J., "Flow past Wall-Mounted .... Bodies",
- J. Eng. Mechs. ASCE, 1987 (104, 10), pp. 1611-1616.
- 28. Ramamurthy, A.S., Chandar, R.B. and Vo, Diep, "Submerged Flow in Throatless Flumes", J. Ir. &Dr, ASCE, 1987 (114, 1), pp. 186-194.
- 29. Ramamurthy, A.S. and Satish, M.G., "Discharge Characteristics of Flow Past a Floor Slot",
- J. Ir. & D, ASCE, 1986, (112, 1), pp. 20-27.
- 30. Ramamurthy, A.S., Tim, U.S. and Sarraf, S., "Lateral orifice flows", (112, 2)
- J. Env. Engg. ASCE, 1986 (112), pp. 292-300.
- 31. Ramamurthy, A.S., Udoyara, T. and Carballada, B.L., "Trapezoidal Lateral Weirs"
- J. Ir. &Dr, ASCE, 1986 (112, 2), pp. 130-138, 1986.
- 32. Ramamurthy, A.S., Rao, M.V.J. and Auckle, D. "Characteristics of Throatless Flumes",
- J Ir. &Dr, ASCE, 1985 (111, 1) pp. 65-75.
- 33. Ramamurthy, A.S., Ranganath, Y.S. and Carballada, B.L., "Size Effects on Cavitation Damage",
- J Hyd. Eng. .ASCE 1984 (110, 10), pp 1490-94.
- 34. Ramamurthy, A.S. and B. L. Carballada, "Lateral Weir Flow Model",
- J Ir. and Dr. ASCE, 1980 (106, 1), pp. 9-25.
- 35. Ramamurthy, A.S. and B. L. Carballada, "Lateral Flow Past a Barrier",
- J Fluids Engg. TASME 1979 (101, 4), pp. 449-452.
- 36. Ramamurthy, A.S. and P. Bhaskaran, "Velocity Exponents for Cavitation Noise and Damage"
- J. Fluids Engg. TASME 1979 (100, 1), pp. 69-75.
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