

Underlined text: supervised students and postdoctoral researchers

### Peer-reviewed journal publications

- 1 Thürlimann, C M, Udert, K M, Morgenroth, E, **Villez, K** (2019). Stabilizing control of a urine nitrification process in the presence of sensor drift. *Wat Res*, Accepted, In Press.
- 2 Russo, S, Li, G, **Villez, K** (2019). Automated model selection in principal component analysis: A new approach based on the cross-validated ignorance score. *Ind Eng Chem Res*, 58, 30.
- 3 Schneider, M Y, Carbajal, J P, Furrer, V, Maurer, M, **Villez, K** (2019). Beyond signal quality: The value of unmaintained pH, dissolved oxygen, and oxidation–reduction potential sensors for remote performance monitoring of on–site sequencing batch reactors. *Wat Res*, 161, 639–651.
- 4 Blumensaat, F, Leitao, J P, Ort, C, Rieckermann, J, Shaw, A, Vanrolleghem, P A, **Villez, K** (2019). How urban water management prepares for emerging opportunities and threats: Digital transformation, ubiquitous sensing, new data sources, and beyond – a horizon scan. *Environ Sci Technol*, 53(15), 8488–8498.
- 5 Mansfeldt, C, Achermann, S, Men, Y, Walser, J–C, **Villez, K**, Joss, A, Johnson, D R, Fenner, K (2019). Microbial residence time is a controlling parameter of the taxonomic composition and functional profile of microbial communities. *The ISME Journal*, 13, 6.
- 6 **Villez, K**, Billeter, J, Bonvin, D (2019). Incremental parameter estimation under rank–deficient measurement conditions. *Processes*, 7(2), 75.
- 7 Laureni, M, Weissbrodt, D G, **Villez, K**, Robin, O, de Jonge, N, Rosenthal, A, Wells, G, Nielsen, J L, Morgenroth, E, Joss, A (2019). Biomass segregation between biofilm and flocs improves the control of nitrite–oxidizing bacteria in mainstream partial nitrification and anammox processes. *Wat Res*, 154, 104–116.
- 8 Regmi, P, Stewart, H, Amerlinck, Y, Arnell, M, Juan Garcia, P, Johnson, B, Maere, T, Miletic, I, Miller, M W, Rieger, L, Samstag, R, Santoro, D, Schraa, O, Srinivasan, S, Takács, I, Torfs, E, van Loosdrecht, M C M, Vanrolleghem, P A, **Villez, K**, Volcke, E I P, Weijers, S, Grau, P, Jimenez, J, Rosso, D (2018). The future of WRRF modelling – Outlook and challenges. *Wat Sci Technol*, 79, 1.
- 9 Corominas, L, Garrido–Baserba, M, **Villez, K**, Olsson, G, Cortes, U, Poch, M (2018). Transforming data into knowledge for improved wastewater treatment operation: A critical review of techniques. *Environ Modell and Softw*, 106, 89–103.

- 10 Thürlimann, C M, Dürrenmatt, D J, **Villez, K** (2018). Soft-sensing with qualitative trend analysis for wastewater treatment plant control. *Control Eng Pract*, 70, 121–133.
- 11 Thürlimann, C M, **Villez, K** (2017). Input estimation as a qualitative trend analysis problem. *Comp Chem Eng*, 107, 333–342.
- 12 Masic, A, Srinivasan, S, Billeter, J, Bonvin, D, **Villez, K** (2017). Identification of biokinetic models using the concept of extents. *Environ Sci Technol*, 51(13), 7520–7513.
- 13 Derlon, N, Thürlimann, C M, Dürrenmatt, D J, **Villez, K** (2017). Batch settling curve registration via image data modeling. *Wat Res*, 114, 327–337.
- 14 Masic, A, Srinivasan, S, Billeter, J, Bonvin, D, **Villez, K** (2017). Shape constrained splines as transparent black-box models for bioprocess modeling. *Comp Chem Eng*, 99, 96–105.
- 15 Masic, A, Udert, K, **Villez, K** (2016). Global parameter optimization for biokinetic modeling of simple batch experiments. *Environ Modell and Softw*, 85, 356–373.
- 16 **Villez, K**, Vanrolleghem, P A, Corominas, L (2016). Optimal flow sensor placement on wastewater treatment plants. *Wat Res*, 101, 75–83.
- 17 **Villez, K**, Habermacher, J (2016). Shape anomaly detection for process monitoring of a sequencing batch reactor. *Comp Chem Eng*, 91, 365–379.
- 18 Mears, L, Noerregård, R, Stocks, S M, Albaek, M O, Sin, G, Gernaey, K V, **Villez, K** (2016). Functional unfold principal component regression methodology for analysis of industrial batch process data. *AIChE J*, 62, 1986–1994.
- 19 Masic, A, Santos, A T L, Etter, B, Udert, K M, **Villez, K** (2015). Estimation of nitrite in source-separated nitrified urine with UV spectrophotometry. *Wat Res*, 85, 244–254.
- 20 Wall, S K, Gross, J J, Kessler, E C, **Villez, K**, Bruckmaier, R M (2015). Blood-derived proteins in milk at start of lactation: Indicators of active or passive transfer. *J Dairy Sci*, 98(11), 7748–7756.
- 21 Schielke-Jenni, S, **Villez, K**, Morgenroth, E, Udert, K M (2015). Observability of anammox activity in single-stage nitrification/anammox reactors using mass balances. *Environ Sci: Water Res Technol*, 1, 523–534.
- 22 **Villez, K** (2015). Qualitative path estimation: A fast and reliable algorithm for qualitative trend analysis. *AIChE J*, 61, 1535–1546.
- 23 Lin, W-C, **Villez, K R E**, Garcia, H (2014). Experimental validation of a resilient monitoring and control system. *J Process Contr*, 24, 624–639.
- 24 **Villez, K**, Venkatasubramanian, V, Rengaswamy, R (2013). Generalized shape constrained spline fitting for qualitative analysis of trends. *Comp Chem Eng*, 58, 116–134.
- 25 Baert, A, **Villez, K**, Steppe, K (2013). Automatic drought stress detection in plants without using conventional reference values. *Plant Soil*, 369, 439–452.

- 26 **Villez, K**, Rosén, C, Anctil, F, Duchesne, C, Vanrolleghem, P A (2013). Qualitative representation of trends (QRT): Extended method for identification of consecutive inflection points. *Comp Chem Eng*, 48, 187–199.
- 27 Maere, T, **Villez, K**, Marsili–Libelli, S, Naessens, W, Nopens, I (2012). Membrane bioreactor fouling behaviour assessment through principal component analysis and fuzzy clustering. *Wat Res*, 46, 6132–6142.
- 28 Baert, A, **Villez, K**, Steppe, K (2012). Functional unfold principal component analysis for automatic plant–based stress detection in grapevine. *Funct Plant Biol*, 39, 519–530.
- 29 **Villez, K**, Rieger, L, Keser, B, Venkatasubramanian, V (2012). Probabilistic qualitative analysis for fault detection and identification of an on–line phosphate analyzer. *Int J Adv Eng Sci Appl Math*, 4, 67–77.
- 30 Monroy, I, **Villez, K**, Graells, M, Venkatasubramanian, V (2012). Fault diagnosis of a benchmark fermentation process: A comparative study of feature extraction and classification techniques. *Biosyst Eng*, 35, 689–704.
- 31 **Villez, K**, Srinivasan, B, Rengaswamy, R, Narasimhan, S, Venkatasubramanian, V (2011). Kalman–based strategies for fault detection and identification (FDI): Extensions and critical evaluation for a buffer tank system. *Comp Chem Eng*, 35(5), 806–816.
- 32 Corominas, L, **Villez, K**, Aguado, D, Rieger, L, Rosén, C, Vanrolleghem, P A (2011). Performance evaluation of fault detection methods for wastewater treatment processes. *Biotechnol Bioeng*, 108, 333–344.
- 33 Rieger, L, Takács, I, **Villez, K**, Siegrist, H, Lessard, P, Vanrolleghem, P A, Comeau, Y (2010). Data reconciliation for wastewater treatment plant simulation studies – Planning for high–quality data and typical sources of errors. *Water Environ Res*, 82, 426–433.
- 34 **Villez, K**, Rosén, C, D’hooge, E, Vanrolleghem, P A (2010). Online phase length optimization for a sequencing batch reactor by means of the Hotelling’s T2 statistic. *Ind Eng Chem Res*, 49, 180–188.
- 35 Belia, E, Amerlinck, Y, Benedetti, L, Johnson, B, Sin, G, Vanrolleghem, P A, Gernaey, K, Gillot, S, Neumann, M B, Rieger, L, Shaw, A, **Villez, K** (2009). Wastewater treatment modelling: Dealing with uncertainties. *Wat Sci Technol*, 60(8), 1929–1941.
- 36 **Villez, K**, Steppe, K, De Pauw, D J W (2009). Use of unfold PCA for on–line plant stress monitoring and sensor failure detection. *Biosyst Eng*, 103, 23–34.
- 37 **Villez, K**, Ruiz, M, Sin, G, Rosén, C, Colomer, J, Vanrolleghem, P A (2008). Combining multiway principal component analysis (MPCA) and clustering for efficient data mining of historical data sets of SBR processes. *Wat Sci Technol*, 57(10), 1659–1666.
- 38 **Villez, K**, Rosén, C, Anctil, F, Duchesne, C, Vanrolleghem, P A (2008). Qualitative representation of trends: An alternative approach to on–line process diagnosis and control of SBR’s for nutrient removal. *Wat Sci Technol*, 57(10), 1525–1532.

- 39 Yoo, C K, **Villez, K**, Van Hulle, S W H, Lee, I-B, Vanrolleghem, P A (2007). Enhanced process monitoring for wastewater treatment systems. *Environmetrics*, 19(6), 602–617.
- 40 **Villez, K**, Pelletier, G, Rosén, C, Anctil, F, Duchesne, C, Vanrolleghem, P A (2007). Comparison of two wavelet-based tools for data mining of urban water networks time series. *Wat Sci Technol*, 56(6), 57–64.
- 41 Yoo, C K, **Villez, K**, Lee, I-B, Rosén, C, Vanrolleghem, P A (2006). Multi-model statistical process monitoring and diagnosis of a sequencing batch reactor. *Biotechnol Bioeng*, 96(4), 687–701.
- 42 Yoo, C K, **Villez, K**, Lee, I-B, Vanrolleghem, P A (2006). Multivariate nonlinear statistical monitoring of a sequencing batch reactor. *J Chem Eng Jpn*, 39(1), 43–51.
- 43 Yoo, C K, **Villez, K**, Lee, I-B, Van Hulle, S W H, Vanrolleghem, P A (2006). Sensor validation and reconciliation for a partial nitrification process. *Wat Sci Technol*, 53(4–5), 513–521.
- 44 Sin, G, **Villez, K**, Vanrolleghem, P A (2006). Application of a model-based optimisation methodology for nutrient removing SBRs leads to falsification of the model. *Wat Sci Technol*, 53(4–5), 95–103.
- 45 Van Hulle, S W H, Van Den Broeck, S, Maertens, J, **Villez, K**, Donckels, B, Schelstraete, G, Volcke, E I P, Vanrolleghem, P A (2005). Construction, start-up and operation of a continuously aerated laboratory-scale SHARON reactor in view of coupling with an Anammox reactor. *Water SA*, 31, 327–334.

### Publications without peer review

- 1 **Villez, K**, Masic, A, Srinivasan, S, Billeter, J, Bonvin, D (2016). Interpretierbare Black-Box-Modelle / Interpretable black-box models. In: ETHZ D-BAUG Jahresbericht 2015 / Annual Report 2015. *ETH Zürich*, Zürich, Switzerland.
- 2 Etter, B, Udert, K M, Gounden, T (2015). VUNA final report. *Eawag*, Dübendorf, Switzerland.
- 3 Thürlimann, C M, Dürrenmatt, D J, **Villez, K** (2015). Energy and process data processing and visualisation for optimising wastewater treatment plants. *Water Practice and Technology*, 10(1), 10–18.
- 4 **Villez, K**, Dürrenmatt, D J, Kaufmann, M (2015). Verstecktes Potential in Kläranlagendaten (in German). *Aqua & Gas*, 2015(2), 76–81.
- 5 **Villez, K**, Vanrolleghem, P A (2008). Het 1ste IWA/WEF Wastewater Treatment Modelling Seminar (WWTmod2008): Een nieuwe start. (in Dutch). *Afvalwaterwetenschap*, 7(4), 83–85.
- 6 Nopens, I, **Villez, K**, Rieger, L, Vanrolleghem, P A (2007). Monitoring the water cycle – state of the art and future needs. *IWA Yearbook*, 2007, 33–36.
- 7 Volcke, E I P, **Villez, K**, Van Hulle, S W H, Vanrolleghem, P A (2004). Wat met rejectiewater? (in Dutch). *Afvalwaterwetenschap*, 3(4), 297–318.

## Conference proceedings

- 1 Russo, S, Disch, A, Blumensaat, F, **Villez, K** (2019). Anomaly detection using deep autoencoders for in-situ wastewater systems monitoring data. *Proceedings of the 10th IWA Symposium on Systems Analysis and Integrated Assessment (Watermatex2019)*, Copenhagen, Denmark, September 1–4, 2019, selected for plenary presentation.
- 2 Russo, S, Li, G, **Villez, K** (2019). Objective dimensionality selection in principal component analysis of high-dimensional data sets. *Proceedings of the 10th IWA Symposium on Systems Analysis and Integrated Assessment (Watermatex2019)*, Copenhagen, Denmark, September 1–4, 2019, selected for plenary presentation.
- 3 Russo, S, Blumensaat, F, Bouffard, D, Hammes, F, Matthews, B, Morgenroth, E, Pomati, F, **Villez, K** (2019). ADASen: Anomaly detection for adaptive sensor network management. *1st Swiss Workshop on Machine Learning for Environmental and Geosciences 2019*, Dübendorf, January 16–17, 2019, Spotlight talk + poster presentation.
- 4 Schneider, M Y, Carbajal, J P, Furrer, V, **Villez, K**, Maurer, M (2018). Identifying the performance of on-site wastewater treatment plants. *15th International Specialised Conferences on Small Water and Wastewater Systems and 7th IWA Conference on Resources Oriented Sanitation (SWWS2018)*, Haifa, Israel, October 14–18, 2018, Oral presentation.
- 5 Moy de Vitry, M, Kramer, S, **Villez, K**, Wegner, J D, Leitao, J P (2018). Calibrating urban flood models with qualitative probabilistic flooding information extracted from CCTV footage. *11th International Conference on Urban Drainage Modelling (UDM2018)*, Palermo, Italy, September 23–26, 2018, Oral presentation.
- 6 Rieckermann, J, Blumensaat, F, Leitao, J P, Ort, C, Scheidegger, A, Vanrolleghem, P A, **Villez, K** (2018). Frontiers in urban drainage – How will ubiquitous sensing change urban drainage management?. *11th International Conference on Urban Drainage Modelling (UDM2018)*, Palermo, Italy, September 23–26, 2018, Oral presentation.
- 7 Ohmura, K, Thürlimann, C M, Kipf, M, **Villez, K** (2018). Keeping track of pH sensors in biological wastewater treatment systems. *Water Environment Federation's 91st Annual Technical Exhibition & Conference (WEFTEC2018)*, New Orleans, LA, USA, September 29–October 3, 2018, Oral presentation.
- 8 Thürlimann, C M, Udert, K M, Morgenroth, E, **Villez, K** (2018). Assessment of two qualitative trend analysis tools for process control. *4th IWA Specialized International Conference Ecotechnologies for Wastewater Treatment (EcoSTP2018)*, London, ON, Canada, June 25–27, 2018, Oral presentation.
- 9 **Villez, K** (2017). Data reconciliation with inequality constraints induces bias: A cause for concern?. *2017 AIChE Annual meeting*, Minneapolis, MN, USA, October 29–November 3, 2017, Oral presentation.
- 10 Masic, A, Billeter, J, Bonvin, D, **Villez, K** (2017). Extent computation under rank-deficient conditions. *IFAC–PapersOnLine*, 50(1), 3929–3934.

- 11 Valverde–Perez, B, Wagner, D S, Steidl, M, **Villez, K**, Plosz, B Gy (2017). In-situ UV–Vis probe to monitor algal photobioreactors treating municipal wastewater. *Proceedings of the 12th IWA Specialized Conference on Instrumentation, Control and Automation (ICA2017)*, Québec, QC, Canada, 11–14 June 2017, 55–59.
- 12 Garrido–Baserba, M, Corominas, L, **Villez, K**, Olsson, G, Cortes, U, Poch, M (2017). Turning passive data into knowledge – A review of wastewater treatment monitoring methods. *Proceedings of the 12th IWA Specialized Conference on Instrumentation, Control and Automation (ICA2017)*, Québec, QC, Canada, 11–14 June 2017, 47–50.
- 13 Thürlimann, C M, Brouckaert, C, Udert, K M, Morgenroth, E, **Villez, K** (2017). Qualitative control for stable and efficient urine nitrification. *Proceedings of the 12th IWA Specialized Conference on Instrumentation, Control and Automation (ICA2017)*, Québec, QC, Canada, 11–14 June 2017, 287–290.
- 14 **Villez, K**, Thürlimann, C M, Brouckaert, C, Masic, A (2017). Soft–sensing nitrite in a urine nitrification system for resource recovery. *Proceedings of the 12th IWA Specialized Conference on Instrumentation, Control and Automation (ICA2017)*, Québec, QC, Canada, 11–14 June 2017, 99–102.
- 15 **Villez, K**, Thürlimann, C M, Kaufmann, M (2017). Observing the observer: Monitoring pH sensors by means of step response experiments. *Proceedings of the 12th IWA Specialized Conference on Instrumentation, Control and Automation (ICA2017)*, Québec, QC, Canada, 11–14 June 2017, 27–30.
- 16 Masic, A, Billeter, J, Bonvin, D, **Villez, K** (2017). Reaction extents: A divide–and–conquer approach for kinetic model identification. *Proceedings of the Frontiers International Conference on Wastewater Treatment (FICWTM2017)*, Palermo, Italy, May 21–24, 2017, 134–138.
- 17 Laureni, M, Weissbrodt, D G, **Villez, K**, Robin, O, de Jonge, N, Rosenthal, A, Wells, G, Nielsen, J L, Morgenroth, E, Joss, A (2017). Robust NOB control in hybrid biofilm systems operated for mainstream partial nitritation and anammox: An experimental and modelling study. *Frontiers International Conference on Wastewater Treatment (FICWTM2017)*, Palermo, Italy, May 21–24, 2017, 745–749.
- 18 Laureni, M, Weissbrodt, D G, **Villez, K**, Robin, O, de Jonge, N, Rosenthal, A, Wells, G, Nielsen, J L, Morgenroth, E, Joss, A (2017). Biomass segregation in hybrid biofilm systems improves NOB control in mainstream partial nitritation and anammox. *10th International Conference on Biofilm Reactors (Biofilm2017)*, Dublin, Ireland, May 9–12, 2017, appeared on USB stick.
- 19 Thürlimann, C M, Udert, K M, Morgenroth, E, **Villez, K** (2016). Nitrite sensing in a urine nitrification reactor with in–situ UV–Vis spectrometry. *3rd IWA New Developments in IT in Water Conference*, Telford, UK, November 1–3, 2016, oral presentation.

- 20 Derlon, N, Thürlimann, C M, Dürrenmatt, D J, Villez, K (2016). Batch settling curve registration via shape constrained spline-based image analysis. *3rd IWA New Developments in IT in Water Conference*, Telford, UK, November 1–3, 2016, oral presentation.
- 21 Thürlimann, C M, Villez, K (2016). In-situ nitrite sensing in a urine nitrification reactor by means of UV-Vis spectrometry. *WEF/IWA Nutrient Removal and Recovery 2016 Conference (NRR2016)*, Denver, CO, USA, July 10–13, 2016, appeared on USB stick.
- 22 Masic, A, Srinivasan, S, Billeter, J, Bonvin, D, Villez, K (2016). Biokinetic process model diagnosis with shape-constrained spline functions. *3rd IWA Specialized International Conference Ecotechnologies for Wastewater Treatment (ecoSTP16)*, Cambridge, UK, June 27–30, 2016, appeared on USB stick.
- 23 Masic, A, Srinivasan, S, Billeter, J, Bonvin, D, Villez, K (2016). On the use of shape-constrained splines for biokinetic process modeling. *IFAC-PapersOnLine*, 49(7), 1145–1150.
- 24 Masic, A, Srinivasan, S, Billeter, J, Bonvin, D, Villez, K (2016). Biokinetic model identification via extents of reaction. *5th IWA/WEF Wastewater Treatment Modelling Seminar (WWTmod2016)*, Annecy, France, April 2–6, 2016, appeared on USB-stick.
- 25 Mears, L, Noerregård, R, Stocks, S M, Albaek, M O, Sin, G, Gernaey, K, Villez, K (2015). Functional unfold principal component analysis methodology for industrial scale fermentation data. *10th European Congress of Chemical Engineering – 3rd European Congress of Applied Biotechnology – 5th European Process Intensification Conference (ECCE10+ECAB3+EPIC5)*, Nice, France, September 27 – October 1, 2015, presented.
- 26 **Villez, K**, Vanrolleghem, P A, Corominas, L (2015). Optimizing observability and redundancy by means of globally optimal measurement selection. *Proceedings of the 9th IWA Symposium on Systems Analysis and Integrated Assessment (Watermatex2015)*, Gold Coast, Queensland, Australia, June 14–17, 2015, appeared on-line.
- 27 Masic, A, Santos, A T L, Hess, A, Thürlimann, C M, Etter, B, Udert, K M, Villez, K (2015). Nitrite estimation in nitrified urine by UV spectroscopy of weak nitrite/nitrate absorbance peaks. *Proceedings of the 9th IWA Symposium on Systems Analysis and Integrated Assessment (Watermatex2015)*, Gold Coast, Queensland, Australia, June 14–17, 2015, appeared on-line.
- 28 **Villez, K**, Habermacher, J (2015). Qualitative trend analysis for fault detection in batch processes. *Proceedings of the 9th IWA Symposium on Systems Analysis and Integrated Assessment (Watermatex2015)*, Gold Coast, Queensland, Australia, June 14–17, 2015, appeared on-line.
- 29 **Villez, K**, Del Giudice, D, Neumann, M B, Rieckermann, J (2015). The statistical description of model bias as a method to account for model structure errors. *Proceedings of the 9th IWA Symposium on Systems Analysis and Integrated Assessment (Watermatex2015)*, Gold Coast, Queensland, Australia, June 14–17, 2015, appeared on-line.

- 30 Mears, L, Noerregård, R, Stocks, S M, Albaek, M O, Sin, G, Gernaey, K, **Villez, K** (2015). Multivariate analysis of industrial scale fermentation data. *Computer Aided Chemical Engineering*, 37, 1667–1672.
- 31 **Villez, K**, Habermacher, J (2015). Shape constrained splines with discontinuities for anomaly detection in a batch process. *Computer Aided Chemical Engineering*, 37, 1805–1810.
- 32 Thürlimann, C M, Dürrenmatt, D J, **Villez, K** (2015). Evaluation of qualitative trend analysis as a tool for automation. *Computer Aided Chemical Engineering*, 37, 2531–2536.
- 33 Masic, A, Santos, A T L, Etter, B, Udert, K, **Villez, K** (2015). Estimation of nitrite concentration in a urine nitrification reactor by means of UV spectrophotometry. *Proceedings of the 2015 IWA Nutrient Removal and Recovery Conference (NRR2015)*, Gdansk, Poland, May 18–21, 2015, 754–756.
- 34 Mears, L, Noerregård, R, Stocks, S M, Sin, G, Gernaey, K, **Villez, K** (2015). Application of multivariate analysis tools to industrial scale fermentation data. *Proceedings of the Advances in Process Analytics and Control Technology Conference (APACT15)*, Manchester, UK, April 22–24, 2014, appeared on USB–stick.
- 35 **Villez, K**, Corominas, L, Vanrolleghem, P A (2015). Sensor placement by means of deterministic global optimization. *Proceedings of the 2nd IWA New Developments in IT & Water Conference*, Rotterdam, The Netherlands, February 8–10, 2015, appeared on USB–stick.
- 36 Thürlimann, C M, Dürrenmatt, D J, **Villez, K** (2015). Qualitative trend analysis for pH based soft–sensing of ammonia in full scale continuous WWTPs. *Proceedings of the 2nd IWA New Developments in IT & Water Conference*, Rotterdam, The Netherlands, February 8–10, 2015, appeared on USB–stick.
- 37 **Villez, K** (2014). Qualitative trend analysis for process monitoring and supervision based on likelihood optimization: State–of–the–art and current limitations. *IFAC Proceedings Volumes*, 47(3), 7140–7145.
- 38 Masic, A, **Villez, K** (2014). Model–based observers for monitoring of a biological nitrification process for decentralized wastewater treatment – Initial results. *Conference Proceedings of the 2nd IWA Specialized International Conference Ecotechnologies for Wastewater Treatment (EcoSTP2014)*, Verona, Italy, June 23–25, 2014, 402–405.
- 39 Thürlimann, C M, Dürrenmatt, D J, **Villez, K** (2013). Intuitive visual communication of temporal data. *Proceedings of the 2013 AIChE Annual Meeting*, San Francisco, CA, USA, November 3–8, 2013, 399.
- 40 **Villez, K**, Thürlimann, C M, Dürrenmatt, D J (2013). Qualitative trend analysis with shape constrained splines: Multivariate extension and validation with full–scale data. *Proceedings of the 2013 AIChE Annual Meeting*, San Francisco, CA, USA, November 3–8, 2013, 322.



- 41 **Villez, K** (2013). Sensor maintenance optimization based on a prognostic model. *Proceedings of the 2013 AIChE Annual Meeting*, San Francisco, CA, USA, November 3–8, 2013, 201.
- 42 **Villez, K**, Corominas, L, Vanrolleghem, P A (2013). Sensor fault detection and diagnosis based on bilinear mass balances in wastewater treatment systems. *Proceedings of the 11th IWA Conference on Instrumentation, Control and Automation (ICA2013)*, Narbonne, France, Sept. 18–20, 2013, appeared on USB–stick (IWA–12744).
- 43 **Villez, K**, Corominas, L, Vanrolleghem, P A (2013). Structural observability and redundancy classification for sensor networks in wastewater systems. *Proceedings of the 11th IWA Conference on Instrumentation, Control and Automation (ICA2013)*, Narbonne, France, Sept. 18–20, 2013, appeared on USB–stick (IWA–12741).
- 44 De Temmerman, L, Temmink, H, Maere, T, Naessens, W, Marsili–Libelli, S, **Villez, K**, Nopens, I (2013). Detecting membrane fouling occurrences in a full–scale membrane bioreactor with principal component analysis. *Proceedings of the 11th IWA Conference on Instrumentation, Control and Automation (ICA2013)*, Narbonne, France, Sept. 18–20, 2013, appeared on USB–stick (IWA–12694).
- 45 Thürlimann, C M, Dürrenmatt, D J, **Villez, K** (2013). Energy and process data processing and visualisation for waste water treatment plant optimisation. *Proceedings of the 11th IWA Conference on instrumentation control and automation (ICA2013)*, Narbonne, France, Sept. 18–20, 2013, appeared on USB–stick (IWA–12647).
- 46 **Villez, K**, Rengaswamy, R (2013). A generative approach to qualitative trend analysis for batch process fault diagnosis. *Proceedings of the European Control Conference 2013 (ECC13)*, Zurich, Switzerland, July 17–19, 1958–1963.
- 47 **Villez, K**, Garcia, H, Venkatasubramanian, V (2012). Fault detection and identification based on Kalman filtering under randomized sensing strategies. *Proceedings of the 2012 AIChE Annual Meeting*, Pittsburgh, PA, USA, October 28–November 2, 2012, 345.
- 48 Pervaiz, Z, **Villez, K**, Venkatasubramanian, V (2012). Many–to–many routing of vehicles in a city network with facility interception constraints. *Proceedings of the 2012 AIChE Annual Meeting*, Pittsburgh, PA, USA, October 28–November 2, 2012, 281.
- 49 **Villez, K**, Venkatasubramanian, V (2012). Fault diagnosis of a benchmark fermentation process based on probabilistic qualitative analysis of trends. *Proceedings of the 2012 AIChE Annual Meeting*, Pittsburgh, PA, USA, October 28–November 2, 2012, 145.
- 50 Rieger, C, **Villez, K** (2012). Resilient control system execution agent (ReCoSEA). *Proceedings of the 5th International Symposium on Resilient Control Systems (ISRC2012)*, Salt Lake City, UT, USA, August 14–16, 2012, 143–148.
- 51 **Villez, K**, Rieger, C, Venkatasubramanian, V (2011). Optimal rerouting of traffic flows for resilient management of recharging station networks. *Proceedings of the 2011 AIChE Annual Meeting*, Minneapolis, MN, USA, October 16–21, 2011, 312.

- 52 **Villez, K**, Garcia, H, Rieger, C, Venkatasubramanian, V (2011). Kalman-based fault-tolerant control (FTC) for a pilot-scale cooling loop. *Proceedings of the 2011 AIChE Annual Meeting*, Minneapolis, MN, USA, October 16–21, 2011, 283.
- 53 Naessens, W, Maere, T, **Villez, K**, Marsili-Libelli, S, Nopens, I (2011). Assessment of membrane bioreactor fouling behaviour using principal component analysis. *Proceedings of the 2nd IWA BeNeLux Young Water Professionals Conference*, Leuven, Belgium, September 20–22, 2011, appeared on-line.
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